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Background Document Response to Comments on the Third Third Land
Disposal Restrictions Proposed Rule, November 22, 1989
(54 FR 48372). Volume 3. Policy Related Comments

(U.S.) Environmental Protection Agency, Washington, DC

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**BACKGROUND DOCUMENT
RESPONSE TO COMMENTS ON THE THIRD
THIRD LAND DISPOSAL RESTRICTIONS
PROPOSED RULE
NOVEMBER 22, 1989 (54 FR 48372)**

**Volume 3
Policy Related Comments**

May 8, 1990

Prepared for:

Land Disposal Restrictions Branch
Characterization and Assessment Division
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1. APPROACH AND ORGANIZATION

On November 22, 1989, the Environmental Protection Agency (EPA, the Agency) proposed a rule to prohibit the land disposal of the final third of the schedule of restricted hazardous wastes, known as the Third Third (see 54 Federal Register 48372). The proposal outlined treatment standards and effective dates of prohibition for these wastes as well as for some First and Second Third "soft hammer" wastes, characteristic wastes, certain waste groups (e.g., multisource leachate, radioactive mixed waste), and newly listed wastes. The proposed rule was issued pursuant to the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA).

The Agency requested public comment on the proposal. The regulated community, environmental organizations, trade associations, State and Federal agencies, and concerned citizens submitted over 300 written letters on the proposed rule. EPA developed three volumes of a comment response document: Volume 1 addresses comments on waste-specific treatment standards, Volume 2 addresses waste-specific capacity concerns, and Volume 3 addresses comments on broad policy issues. This document (Volume 3 of 3) presents a summary of and responses to comments received by the EPA docket clerk up to (and after) the end of the public comment period on January 8, 1990.

Approach

The preparation of this document involved several steps. First, major issues in the proposed rule were identified. Second, each comment letter was read and categorized into issues corresponding to those of the proposed rule. Third, all comments addressing each issue were summarized, and similar

comments were grouped together. Finally, Agency responses to each issue were developed.

Obviously, many commenters expressed the same or similar concerns. In summarizing the comments it was necessary to generalize. Thus, the summary of comments in this document does not attempt to replace completely the actual written comments. The actual comments are available in the RCRA LDR-12 docket at U.S. EPA Headquarters.

Organization

The comment summaries and responses are organized into 30 chapters. Chapters 2 through 30 each correspond to an issue identified in the proposed rule (see table of contents). Chapter 31 presents comments received in response to the advance notice of proposed rulemaking published as part of the Second Third land disposal restrictions proposed rule preamble (January 11, 1989; 54 FR 1056). The Agency has responded to these comments along with similar comments on Third Third issues. Finally, Chapter 32 contains several indices to the comment response background document, including a list of the commenters according to the EPA docket number, and a list of the major issues from the proposed rule along with the names and docket numbers of the commenters who referred to each issue.

2. "DE MINIMIS" RESIDUE LEVELS

Summary of Comments

Several commenters (Association of State and Territorial Solid Waste Management Officials (157-p.4), Department of Energy (198-pp.28-29), General Motors (143-p.1), and Ciba-Geigy (136-p.5)) supported and encouraged EPA's investigation of de minimis levels for listed hazardous wastes.¹ The commenters contended that the derived-from rule, which maintains that treatment residues of a listed hazardous waste are hazardous, creates treatment disincentives because generators are prohibited from removing low-risk treatment residues from the RCRA regulatory system except through formidable delisting procedures. The commenters expressed concern that unless EPA provides relief in the form of de minimis levels for listed wastes, generators will be discouraged from employing pretreatment methods that concentrate wastes. Given that the land disposal restrictions expand the volume of hazardous wastes requiring treatment, the commenters believe it important that EPA promulgate a de minimis rule. Since EPA may not currently be prepared to issue a broad de minimis ruling, the commenters recommended that EPA promulgate de minimis levels for residues of organic constituents incinerated in permitted or interim status incinerators. In support, they referenced EPA's preamble discussion (54 FR 48470), which indicated that such an approach to organic incinerator residues may be practical.

¹ Commenters are identified at the beginning of each comment. The RCRA docket number stamped on each letter and the relevant pages of the letter are also given. For example, "Department of Energy (198-p.28)" identifies the comment as from the Department of Energy, RCRA docket letter LD12-00198, page 28. Note that each docket number is referred to by the last three digits only.

Agency Response

EPA agrees that setting de minimis levels is likely to be an effective policy for handling hazardous waste with seemingly low concentrations of hazardous constituents. At this time, however, the Agency is not prepared to promulgate a de minimis rulemaking in general or set levels for individual constituents. The Agency is continuing to explore developing a de minimis rule and it will carefully consider the effects of any de minimis levels on land disposal restrictions.

Summary of Comments

General Motors (143-p.1) supported EPA's investigation of de minimis levels for certain hazardous constituents in listed wastes below which the waste will no longer be a hazardous waste for purposes of Subtitle C regulation on page 48382 of the proposed rule. The commenter strongly encouraged this effort, and also mentioned its support of the de minimis approach outlined in the May 5, 1989, petition for rulemaking submitted to the EPA by the Chemical Manufacturer's Association.

Agency Response

The Agency is considering developing a de minimis provision in the context of the RCRA Subtitle C program. To date, the Agency has neither completed its review nor proposed such a provision.

Summary of Comments

ATSTWMO (157-p.4) supported the EPA's intent to develop and identify de minimis levels for certain hazardous wastes. Specifically, the commenter noted EPA's discussion of the regulatory status of treatment residues identified as derived from wastes in the preamble (54 FR 48382). Although the commenter acknowledged that the development of de minimis levels would be subject to extensive review and comment, they claimed this action would be a reasonable mechanism to address the issues associated with treatment disincentives and the management of low-risk treatment residues.

Agency Response

As stated above, the Agency is considering developing a de minimis provision in the context of the RCRA Subtitle C program. Such a provision would balance the disincentives and management of low-risk treatment residues with the need for regulatory control and environmental protectiveness. To date, the Agency has neither completed its review nor proposed such a provision.

3. NEWLY IDENTIFIED AND NEWLY LISTED WASTES

Summary of Comments

Several commenters (ASARCO (269-pp.20-23), du Pont (189-p.2), BP Chemicals (216-p.23), BP America (098-pp.9-10), Precious Metal Producers (203-pp.5-6), SCM (196-pp.10-11), The Fertilizer Institute (092-pp.4-6), Union Carbide (190-p.11), Waste Management, Inc. (159-pp.104-5), Synthetic Organic Chemical Manufacturers (108-pp.32-33), Air Products and Chemical (169-p.6), Chemical Manufacturers Association (L007-pp.73-74), and Department of Energy (198-p.28), Association of State and Territorial Solid Waste Management Officials (157-p.5), and EnviroSAFE (081-p.2)) had various comments regarding EPA's proposed LDR standards for newly identified or listed wastes. Though the commenters varied in their reasoning, most of them asserted that RCRA Section 3004(g) requires EPA to develop treatment standards for newly identified and listed wastes within six months of the effective date of the listed.

Agency Response

Given the pressing timetable mandated by HSWA, the Agency has not developed treatment standards for newly identified waste within the established six-month period. Until the Agency sets such standards, the wastes are not subject to Part 268. In the future, the Agency has every intent to set treatment standards within the six-month statutory deadline.

3.1 Statutory Conflicts

Summary of Comments

Waste Management, Inc. (159-pp.104-5) stated that RCRA Section 3004(g) would conflict with Section 3004(d) if it were applied to newly identified and listed wastes. The commenter asserted that Section 3004(g)(4)(c) expressly directs EPA to establish treatment standards for "any" new listed or identified waste within six months after the date of such identification or listing. The commenter recommended that overlaps between prohibitions should be resolved by EPA's rule that the more specific waste determination applies (e.g. EPA's determination for a specific listed or characteristic waste should override the California list). Precious Metal Producers (203-pp.5-6) asserted that the six-month period specified in Section 3004(g) minimizes the need for an interim standard.

BP (216-pp.23) and Envirosafe (081-p.2) stated that the prospective application of California list prohibitions nullifies the intent of Section 3004(g). Both commenters suggested that an immediately effective prohibition would not allow EPA to either establish treatment standards or determine if alternative capacity exists to treat the newly identified or listed waste.

Several commenters (269, 216, 098, L007, 196, 092, 108, 190, and 159) agreed that the California list prohibitions were meant only to apply to hazardous wastes that were listed or identified as of the date of HSWA, as of the August 8, 1987, effective date of the prohibition, or as of the date the restrictions were enacted. These commenters argued that the statute establishes a 1987 hard hammer demonstrating that the California list requirements were not meant to apply to wastes yet to be identified or listed.

One commenter (108) pointed out the absence of a similar hard hammer for the application of the LDRs to newly identified or listed wastes. Asarco asserted that Congress intended, and EPA acknowledged, the restricted applicability of California list prohibitions. And one commenter (092) noted that the California list restrictions were plainly written in the past tense.

Agency Response

The Agency believes that the statutory language does not mandate the result that California list prohibitions apply to newly identified or newly listed wastes. The statute specifies that the Agency has six months to develop treatment standards for newly identified and listed wastes, and that there would be no statutory hammer if the Agency fails to meet such treatment standards. Given this scheme, it does not appear that Congress necessarily intended that these wastes be subject to immediate California list prohibitions. Furthermore, the California list provision contains a 1987 hard hammer, suggesting that the provision was only meant to apply to wastes hazardous at that time, rather than to wastes yet to be identified.

In addition, the Agency believes application of the California list to newly identified and newly listed wastes would cause massive dislocations in the regulated community and would conflict with the four-year impoundment retrofit provisions in Section 3005(j)(6). Therefore, this rulemaking should minimize disruptions to the regulated community and preclude the need for capacity variance requests. Consequently, EPA is determining that newly identified and listed wastes are prohibited only when the Agency takes specific action with regard to them pursuant to Section 3004(g)(4).

3.2 Other More Generally Applicable Standards

Summary of Comments

Several commenters (Asarco (269-pp.20-23), du Pont (189-p.2), BP Chemicals (216-p.23), BP America (098-pp.9-10), Precious Metal Producers (203-pp.5-6), SCM (196-pp.10-11), The Fertilizer Institute (092-pp.4-6), Union Carbide (190-p.11), Waste Management, Inc. (159-pp.104-5), Synthetic Organic Chemical Manufacturers (108-pp.32-33), Air Products and Chemical (169-p.6), Chemical Manufacturers Association (L007-pp.73-74), and Department of Energy (198-p.28)) stated that newly identified and listed waste should not be subject to California list prohibitions. The commenters asserted that Section 3004(g) requires EPA to develop treatment standards for newly identified and listed wastes within six months of the effective date of the listing.

One commenter (269) claimed that there is little need to apply the California list prohibitions to newly identified or listed wastes as an interim measure, given that EPA has stated it will promulgate treatment standards for mineral processing wastes within six months of the date on which those wastes were identified or listed.

Another commenter (092) noted that the Agency recognized that the technical assessment necessary to apply BDAT for characteristic hazardous waste to newly identified mineral processing wastes has not been completed. The commenter claimed that the Agency's own analysis demonstrates that the application of California list LDRs to newly identified mineral processing waste are without the necessary technical analysis or support, and concludes that EPA cannot legally apply California list LDRs to newly listed or identified hazardous waste.

Several commenters (108, 169, 196, 203, and L007) stated that the decision not to apply the California list restrictions to newly identified wastes will minimize disruption of the regulated community. The commenters cautioned EPA to provide a suitable transition period before imposing any existing land disposal restrictions on newly identified wastes (such as TC wastes) in order to avoid major disruptions or suspensions in production. One commenter (108) stated that small generators that treat or dispose of newly identified wastes on-site lack the resources and flexibility to comply with the requirements of the land disposal restrictions immediately. It is costly and time-consuming for small businesses to find and contract with appropriate off-site facilities, as they lack the market power to compete for limited treatment capacity. One commenter (169) noted that in the past, the Agency granted a three-year adjustment period from the time HSWA was enacted until the California list prohibitions were effective.

Air Products and Chemical (169) stated that newly identified or listed waste should not be subject to California list prohibitions, because such an approach would be an inefficient use of EPA resources. The commenter suggested the EPA should develop an appropriate BDAT standard rather than evaluate, in the interim, whether a treatment method is demonstrated and available, and whether sufficient national capacity exists to meet the applicable California list prohibition.

DOE (198) recommended that land disposal prohibitions for newly identified or listed wastes not take effect until EPA had taken some action specifically toward these wastes, such as a waste-specific rulemaking establishing treatment standards. The commenter asserted that the immediate subjection of newly identified wastes to the California list prohibitions would deprive the regulated community of its opportunity to comment upon the

proposed treatment standard or technology. Because of the variability of wastestreams with constituents subject to the California list prohibitions, application of the treatment standards without consideration of the waste matrix would place undue burdens on the regulated community to develop compliant treatment methods or petitions for variances.

Agency Response

Until the Agency sets such standards for newly listed or identified wastes, the wastes are not subject to Part 268. In the future, the Agency has every intent to set treatment standards within the six month statutory deadline. Upon promulgation of such standards, during a period of a national capacity variance or case-by-case extension, more generally applicable standards (e.g., California list) will remain operable. In the case of mineral processing wastes, the D002 acidic subcategory supercedes the California list restrictions.

3.3 National Capacity Variance

Summary of Comments

Several commenters (269, 216, 098, L007, 196, 092, 190, and 159) agreed with the Agency that there was a problem with existing statutory language on the variances involving the immediate application of California list prohibitions to newly identified or listed wastes. One commenter (098) stated that EPA could not grant a national variance from the California list prohibitions that contained a hard hammer of July 8, 1987, since the maximum extent of the two-year national variance is July 8, 1989. The commenter added that even if EPA grants a national capacity variance, the variance will not prevent the need to use only impoundments that meet the minimum technology requirements (MTRs) or those that have obtained a variance from the MTRs. The commenter also argued that an immediately effective prohibition is not reconciled with Section 3005(j)(6), which allows up to four years to retrofit surface impoundments for newly listed or identified wastes. CMA also noted that an immediately effective prohibition would nullify the Section 3005(j)(6) retrofit opportunity explicitly afforded surface impoundments newly brought in by the revised toxicity characteristic. One commenter (269) asserted that this conflict was created by EPA to veil its attempt to "ignore statutory language" and to nullify the four-year statutory window for retrofitting land disposal units that manage newly identified wastes.

Several commenters argued that if the California list prohibition was applied, EPA might lose power under Section 3004(h) to grant national capacity variances and case-by-case extensions for newly identified wastes. One commenter (190) suggested that EPA use a national capacity variance or case-

by-case extension with the provision that non-MTR facilities may be used to manage restricted waste during the period of variance or exemption. The commenter noted that the process used to grant variances and exemptions should be streamlined, especially for facilities showing good faith towards meeting MTRs or eliminating the restricted waste from the stream.

Agency Response

Until the Agency sets treatment standards for newly identified or listed wastes, the wastes are not regulated by the LDRs or subject to the MTR requirements. Upon promulgation of treatment standards, the statutory provisions set forth in RCRA Section 3004(h)(4) explicitly require newly identified or listed wastes to go to MTR units. However, as noted by the commenter, this may conflict with the 3005(j)(6), which would allow four years to retrofit the surface impoundment. The Agency believes the conflict is not yet before us, and therefore, is not resolving it in this rulemaking.

3.4 Standards for Non-HSWA States

Summary of Comments

Association of State and Territorial Solid Waste Management Officials (157-p.5) requested that EPA provide more information on how the LDR standards apply in authorized (non-HSWA) States that have not yet added newly identified of listed wastes to their hazardous waste regulatory programs. The comment posed two questions: (1) Are these wastes subject to the LDRs? and (2) For newly listed wastes that are regulated in one State but are sent to another State where they have not yet been listed, how do the LDR rules apply? The commenter suggested that EPA develop an alternative schedule for newly identified and newly listed wastes and provide reasonable flexibility in this schedule to allow authorized States time to add those wastes. The commenter also suggested that the land disposal restriction schedule be extended to allow EPA time to complete its comment period on the new waste proposed standard, and allow authorized States time to add the new waste to their programs.

Agency Response

In the first issue regarding authorized (non-HSWA) States, the Agency does not view newly listed wastes as hazardous until that State's program is modified and approved by the EPA. However, for unauthorized States, the LDR standards and listing requirements are immediately effective. For the second issue where newly listed wastes are regulated in one State, but shipped to a State where they have not been listed, the commenter should refer to Section

260.10 (55 FR 2353; January 23, 1990) which provides a definition for "designated facility." It notes that if "a waste is destined to a facility in an authorized State which has not yet obtained authorization to regulate that particular waste as hazardous, then the designated facility must be allowed by the receiving State to accept such waste."

3.5 Management

Summary of Comments

Envirosafe (081-p.2) wanted EPA to clarify how to manage newly identified and newly listed wastes should EPA fail to make a land disposal restriction determination within the six-month statutory deadline.

Specifically

- Do newly identified and listed wastes need soft hammer certification and demonstrations until such a time that EPA promulgates treatment standards (or conversely, are the wastes out of the land disposal restriction system altogether)?
- Second, can the wastes in question be disposed of in units that do not meet the minimum technology requirements?

Agency Response

Again, given the pressing timetable mandated by the HSWA, the Agency has not developed treatment standards for newly identified waste within the established six-month period. Until the Agency sets such standards, the wastes are not regulated by the LDRs or the MTR requirements. In the future, the Agency has every intent to set treatment standards within the six-month statutory deadline.

4. SOFT HAMMER PROVISIONS

Summary of Comments

The Fertilizer Institute (092-p.26) suggested that the Agency delete the soft hammer provision from the regulations in 40 CFR 268 for Third Third wastes because, as of May 8, 1990, the soft hammer requirements will no longer be in effect for First, Second, or Third Third wastes.

Agency Response

Although, the Agency recognizes that the soft hammer provisions are no longer effective as a restriction for RCRA hazardous wastes, the Agency sees no practical purpose in amending the regulations. In fact, keeping the regulations in place will allow the regulated community to reconstruct the history of when and how wastes became regulated under the Subpart.

5. DERIVED-FROM RULE

Summary of Comments

RECONTEK (003-p.1) objected to any modification of the derived-from rule. The commenter asserted that attempts to delist or deregulate the derived products from the treatment of hazardous waste will result in the creation of potential Superfund sites. Further, the commenter opposed exempting any metal-bearing waste residues, because these materials are fully recyclable and thus do not exhibit a characteristic of heavy metals after recovery procedures.

Agency Response

The Agency is not modifying the derived-from rule as it applies to listed waste and residues that exhibit hazardous characteristics.

Summary of Comments

Rhone-Poulenc (207-pp.4-5) stated that EPA's intent to extend the derived-from rule to characteristic wastes is inappropriate given the complexity of the current regulatory system. The commenter asserted that EPA has shifted its focus from treatment methods to treatment of individual constituents of waste. This shift, the commenter argued, has resulted in a reduced number of permitted facilities for certain residues. Furthering such a policy, the commenter stated, will only result in more premature exits. The commenter recommended that the Agency abandon its application of the derived-

from rule to characteristics and constituents.

Agency Response

As the Agency stated in the above responses to RSR Corp, it is not extending the derived-from rule to characteristic waste. Further, under 3004(m), the Agency is authorized to develop stringent and protective standards. EPA, however, does not foresee the standards resulting in fewer permitted facilities or premature exits.

6. APPENDIX VIII METALS

Summary of Comments

Cyprus Copper (121-p.2) suggested that future regulatory activities which add metals to the list of constituents subject to primary drinking water standards should not automatically include such metals as an Appendix VIII hazardous waste characteristic, particularly with newly listed wastes, without the opportunity for notice-and-comment.

Agency Response

The Agency will provide notice to the public and opportunity to comment before promulgating any such future rulemakings.

7. TREATMENT STANDARDS FOR CHARACTERISTIC WASTES

7.1 Statutory and Legislative History Issues

Summary of Comments

The following commenters stated that a number of the principal components of RCRA Subtitle C limit EPA's authority in applying land disposal restrictions to the regulation of "hazardous wastes," as identified or listed pursuant to Section 3001(b)(1): (American Paper Institute (095-pp.3,5), Cadmium Council (100-p.2,3), Lead Industries Association (101-p.2,3), Fertilizer Institute (092-p.8), Chemical Manufacturers Association (L007-p.2,4), ASARCO (269-p.29,32), Kennecott (102-p.8), Synthetic Organic Chemical Manufacturers Association (108-pp.4,10,11), Petroleum Marketers Association of America (205-pp.2-3), Utility Solid Waste Activities Group (204-pp.7-8), Battery Council International (178-p.3), Lubrizol (184-p.1), du Pont (189-p.3), Union Carbide Corporation (190-p.1), ARCO (193-p.2,3), Rohm & Haas (194-p.27,28), Owens (195-p.1), Tyler Pipe (131-p.2), Horsehead Resource Development Company (199-p.3), Precious Metals Producers (206-p.6), GNB (202-p.8), SCM Chemicals (196-p.2), BP Chemicals (216-p.22), Union Carbide (227-p.1), Kemet Electronics (228-p.2), American Petroleum Institute (168-p.59,60,63), Amoco (240-p.6), Unocal (233-p.3), Gulf Coast Waste Disposal Authority (151-p.5), Ferroalloys Association (200-p.1), Cyprus Copper (121-p.3), Texas Utilities Services (123-p.1), Vulcan Chemicals (128-p.2), PPG (133-p.6), Westinghouse (167-p.3), OxyChem (138-p.2), National Paint & Coatings Association (158-p.1), and RSR Corp. (162-p.6,7), Michigan Disposal (113-p.A-1), Hoechst-Celanese (010-p.1), Phillips Petroleum (080-p.1), Specialty Steel

Industry of the U.S. (276-pp.2,3), Steel Manufacturers Association (274-pp.2,3), Kodak (L005-p.3), American Chrome and Chemicals (105-p.1), American Mining Congress (201-p.14,15,18), Department of Energy (198-p.16), Shell Oil (185-p.2), Wayne Disposal (130-p.1), and Exide (117-p.2)).

These commenters stated that the legislative history of the land disposal restrictions confirms that Congress was concerned only about the land disposal of untreated hazardous wastes or of wastes that continue to be hazardous following treatment. This intent is evident by Congress' action in: (1) limiting restrictions on land disposal to hazardous wastes; (2) allowing land disposal by methods that EPA determines are protective for "as long as the waste remains hazardous"; and (3) defining land disposal to mean the placement of a hazardous waste.

These commenters stated that Section 3004(m) is consistent with this intent in that only hazardous wastes are subject to LDRs. The commenters cited as evidence both RCRA Section 3002(a) and RCRA Section 3004(a) which are limited in scope to generators of or facilities for, the treatment, storage, or disposal of hazardous wastes identified or listed under Subtitle C. Furthermore, Section 3004(k) defines "land disposal" as the ". . . placement of such hazardous waste. . ." in a landfill, surface impoundment, or other defined repository. RCRA Section 3004(m), which authorizes the Agency to promulgate the treatment standards here at issue, does not depart from this statutory scheme.

The commenters stated that there is no indication that Congress intended that EPA prescribe treatment standards under Subtitle C for waste that is not classified as hazardous under RCRA or that the Agency's authority under RCRA Subtitle C expand to prohibit the disposal of wastes that no longer exhibit a hazardous characteristic following treatment. On the contrary, the

characteristic level itself imposes a jurisdictional limitation on the extent of treatment permitted under Section 3004(m). Several commenters supported their argument by referring to a brief filed in American Petroleum Institute v. EPA, No. 88-1606 (D.C. Cir. 1989) in which EPA stated that " . . . the RCRA land disposal ban and treatment standards provisions . . . apply on their face only to 'hazardous wastes,' and a material that is no longer a 'solid waste'. . . cannot be a 'hazardous waste.'" The commenters stated that the same logic applies with equal force in the context of characteristic hazardous wastes. If a characteristic hazardous waste is treated so that it loses its identity as a RCRA hazardous waste, the land disposal restrictions no longer apply. In sum, EPA's jurisdiction under Subtitle C is limited to materials that qualify as "hazardous wastes" under RCRA. If a waste is not hazardous, EPA has no authority under the statute to require that the waste be treated further prior to land disposal.

Furthermore, the commenters stated that none of the provisions cited by the Agency in support of their proposal (RCRA Sections 1002(b)(7) and 3004(d), (e), (f), (g), and (m)) indicates that Congress thought that "uncertainties" in land disposal warrant applying Section 3004(m) treatment standards to nonhazardous wastes. (54 FR 48490). In fact, all of the provisions cited, including Section 1002(b)(7), primarily reflect Congress' intent that land disposal of hazardous wastes be minimized or subject to controls that are protective of health and the environment. The commenters stated that for other types of solid, nonhazardous wastes, Congress enacted Subtitle D, with its own separate disposal requirements.

These commenters stated that Section 3004(m) instructs EPA to set treatment standards for wastes subject to the LDRs under Section 3004(g), which reads that the LDRs will apply only as long as the waste remains

hazardous. The commenters stated that the statutory language is clear that LDRs apply only to wastes that are hazardous under Subtitle C, and that these restrictions only apply as long as these wastes are defined as hazardous. These commenters stated that the continued existence of a hazardous waste is, therefore, a prerequisite for asserting RCRA Subtitle C authority, and that Section 3004(m) cannot be read to override this prerequisite.

The commenters' conclusion is that, according to the statute, its legislative history, and previous Agency policy, hazardous wastes cease to be hazardous upon meeting the characteristic level and are therefore expressly exempt from Subtitle C and the LDRs. Any other interpretation of Section 3004(m) renders the "hazardous waste" limitation in the definition of "land disposal" meaningless. These commenters stated that the statute and legislative history demonstrate that the focus of Subtitle C of RCRA in general, and the land disposal restrictions in particular, is on hazardous wastes, as opposed to their nonhazardous treatment residues.

Agency Response

This legal case is discussed at length in the preamble. Our response here should be read in conjunction with the preamble discussion. The Agency acknowledges that there may be more than one possible construction of the statute given the nexus of the term "hazardous waste" to the term "land disposal" in the text of the statute. The view expressed by the commenters may, therefore, be a permissible construction of the statute. The Agency believes, however, that the goals of the statute are better served by applying the prohibition to characteristic wastes prior to land disposal. The Agency further believes that it has been granted certain authorities under Section

3004 which support this construction of the statute.

Specifically, Section 3004(m) of RCRA directs EPA to substantially diminish the toxicity of the waste or substantially reduce the migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized. For toxic wastes, the Agency believes that significant threats to human health and the environment are present at levels below the characteristic levels. The levels for the EP (and TCLP) characteristics are levels at which wastes are clearly hazardous (see 45 FR 33084, May 19, 1980, and 51 FR 21648, June 13, 1986). Therefore, meaningful minimization of threats to human health and the environment may be realized by treatment below these levels.

EPA is further directed by Section 3004(d)(1)(a) to reduce the long-term uncertainties associated with land disposal, especially those associated with the behavior and migration of the waste in the land disposal unit itself. This uncertainty was an important factor in the Agency's prior decision to rely on the underlying health-based standard, rather than the characteristic level, in determining whether a waste remains hazardous for purposes of no migration decisions under 40 CFR Part 148. EPA must also take into account "... the goal of managing hazardous waste in an appropriate manner in the first instance," in determining the scope of the land disposal prohibitions (Section 3004(d)(1)(B)).

Finally, the statutory focus on hazardous constituents beyond the specific characteristics set out in 40 CFR 261 Subpart C is also stated in Section 3004(d) - (g) of RCRA. These provisions authorize EPA to take into account the "... persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous wastes and their hazardous constituents in determining the scope of prohibited hazardous waste."

EPA believes that, based on these statutory provisions, the statute can be reasonably read to grant authority to promulgate treatment standards below the characteristic levels. In addition to specifying incineration as a treatment method for certain characteristic wastes, thus treating these wastes to levels below their characteristic level, the Agency is setting concentration-based standards below the characteristic levels for EP toxic pesticide non-wastewaters. The Agency believes that the prescribed concentration levels for these pesticides are necessary to minimize threats to human health and the environment. Because, the ability to treat these pesticide wastes is less matrix-dependent than for other wastestreams, the Agency believes that the prescribed levels can be consistently achieved through available technology. Furthermore, because the affected wastestreams are cancelled pesticides, EPA believes that this requirement will not cause significant disruption to the regulated community. Moreover, EPA asserts its authority to promulgate concentration-based treatment standards that are below characteristic levels in future rulemakings.

The Agency wishes to further state that in order to fulfill the statutory goals previously discussed, the Agency believes that the determination of whether the land disposal restrictions apply to a waste must be made at the point of generation. Such an approach allows the Agency to better serve the goals of the statute in the following ways:

- (1) The Agency may prohibit dilution of characteristic wastes not currently subject to other EPA regulatory programs (i.e., regulations promulgated pursuant to the CWA or SDWA) (although EPA has independent authority to prevent dilution of hazardous wastes even if prohibitions apply at the point of disposal).

- (2) The Agency may specify a method of treatment as the treatment standard, which must be used upon the waste as generated. This authority is granted in Section 3004(m). If the waste may be diluted (i.e., the determination of LDR applicability made at the point of disposal) so that it no longer exhibits a characteristic, the ability to specify a method would be without meaning for these wastes.

Furthermore, EPA has general authority under RCRA to identify waste for regulation under RCRA Subtitle C and is not limited to one point of evaluation or one set of criteria, but can focus on other criteria as part of Subtitle C regulatory requirements. For example, the clean closure standards for regulated units that hold characteristic wastes require removal of hazardous constituents even if the waste no longer exhibits a hazardous characteristic (53 FR 8705, March 19, 1987). EPA has also previously promulgated regulations requiring that incinerators treating hazardous waste be operated to a certain efficiency. This efficiency requirement is not curtailed simply because a characteristic waste ceases to exhibit a characteristic somewhere in the process. In addition, there are a number of existing EPA regulations that continue to address hazardous constituents from characteristic hazardous waste below the characteristic level for the constituent. Section 3004(a)(3) authorizes EPA to set requirements respecting the "treatment, storage, or disposal" of hazardous waste "pursuant to such operating methods, techniques, and practices as may be satisfactory to the Administrator." This is a broad grant of authority that can attach to the management of hazardous waste irrespective of any limits to authority in Section 3004(g) as long as such requirements are necessary to protect human health and the environment.

The commenters' reference to EPA's brief on American Petroleum Institute v. EPA is inapposite. Considerations as to whether some jurisdictional bias apply at the point of generation or point of disposal need not be identical, and EPA believes that it has discretion to determine at what point such prohibition applies (and how it interfaces with Section 3001 jurisdictional provisions).

Summary of Comments

Several commenters (Tricil Environmental Services (091-pp.2-5), Allied-Signal (267-pp.4-7), Rohm & Haas (194-p.30), and Browning-Ferris (214-pp.3-6)) stated that Section 3004(m) operates as an exception to the prohibitions on land disposal promulgated under Section 3004(d), (e), (f), or (g), and that it does not operate independently from such prohibitions. Therefore, the standards of Section 3004(m) cannot and should not exceed those applicable to Section 3004(d), (e), (f), or (g) in the first place. This point is clear from the language of the land disposal restrictions in general, and Section 3004(g)(5) in particular. Under Section 3004(g)(5), hazardous waste may not be land disposed unless such hazardous waste has complied with the pretreatment regulations promulgated under Section 3004(m), or unless some other exception from the land disposal prohibition is obtained. The pretreatment requirements do not independently require treatment of waste to certain levels or by certain methods, and they do not have regulatory reach beyond Sections 3004(d), (e), (f), and (g) to which they apply as an exception. The Section 3004(m) levels are only applicable in determining whether land disposal of hazardous wastes is in compliance with the land disposal restrictions of sub-sections(d), (e), (f), or (g). The pretreatment

standards provide an option to pretreat hazardous waste prior to land disposal. When the waste is no longer hazardous, the pretreatment option in Section 3004(m) simply does not apply. This is the only logic under which EPA can reconcile the Congressional directive in Section 3004(m) to set treatment standards that minimize threats with the directive in Sections 3004(m), (d), (e), (f), (g), and (k) that only hazardous waste is prohibited from land disposal.

Agency Response

The Agency disagrees with the commenters. Section 3004(m) is indeed linked with Section 3004(d), (e), (f), and (g). However, the Agency does not believe that Congress intended to limit treatment to characteristic levels. The statutory mandate to protect human health and the environment specifies a number of criteria that apply to all of these sections in prohibiting wastes from land disposal: the long-term uncertainties associated with land disposal; the goal of managing hazardous waste in an appropriate manner in the first instance; and the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous wastes and their hazardous constituents. In addition, Section 3004(m) itself requires that the methods or levels of treatment established under that sub-section "substantially diminish the toxicity of the waste or substantially reduce the migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." The Agency believes that treatment to below characteristic levels, if such treatment is found to be necessary (based upon BDAT or health-based standards), is authorized under Section 3004(m) and is in keeping with the language of other sub-sections of Section

3004(m). Furthermore, the Agency believes that the point-of-generation approach is consistent with Congressional intent regarding the construction of Section 3004, and, therefore, references to the land disposal of hazardous waste refer to the characteristic exhibited by the waste at the point of generation.

Summary of Comments

Several commenters (Tricil Environmental Services (091-pp.2-5), Allied-Signal (267-pp.4-7), Owens (195-p.2), BP Chemical (216-p.22), American Petroleum Institute (168-p.61), Browning-Ferris (214-pp.3-6), and Unocal (233-p.3)) stated that EPA's assertion that wastes "destined" for land disposal become subject to Section 3004(m) at the point of generation and remain subject to it regardless of concentrations at any subsequent time is premised on construing Section 3004(m) as if it were a stand-alone section in the statute operating independently of Section 3004(g). The concept that "once wastes become subject to Section 3004(m), they remain subject to the requirements of that Section until the Section 3004(m) standard is satisfied" (54 FR 48490) erroneously accords Section 3004(m) independent status within the regulatory structure of Subtitle C. EPA's analysis overlooks the fact that Section 3004(m)(1) explicitly applies only to a particular hazardous waste for which EPA has prohibited land disposal under Sections 3004(d) and (e) and requires only that treatment standards diminish the toxicity of or reduce the mobility of constituents from that particular hazardous waste in order to minimize risks. The tenuous nature of EPA's position is underscored by the statement in the proposal that wastes subject to Section 3004(m) must be treated to the requisite standards at the very least simply to avoid

violating Section 3004(m) itself. (54 FR 48490). These commenters indicated that Section 3004(m) is clearly not a stand-alone section, and therefore EPA's reading is not supportable.

Agency Response

The Agency disagrees with the commenters. The fact that "Section 3004(m) explicitly applies only to a particular hazardous waste for which EPA has prohibited land disposal under Section 3004(d) and (e) and requires only that treatment standards diminish the toxicity of or reduce the mobility of constituents from that particular hazardous waste in order to minimize risks" is not in direct contradiction to the approach taken by EPA in this rule. EPA agrees with the above statement and finds that characteristic hazardous wastes subject to regulation under Section 3004(d) and (e) (and, therefore, subsection (m)) become subject to regulation at the point of generation and remain subject to these subsections until such time as they have fulfilled the requirements of each of those subsections and, at a minimum, for as long as the wastes remain characteristically hazardous. The Agency refers the commenters to the response to the first comment in this section for detailed discussion of EPA's approach for this rule.

Summary of Comments

Several commenters (Tricil Environmental Services (091-pp.2-5,9,10), Allied-Signal (267-pp.4-7,10), Owens (195-p.2), Browning-Ferris (214-pp.3-6.9), Cyprus Copper (100-p.5), Lead Industries Association (101-p.5), and Kennecott (102-p.9)) stated that EPA's concern that waste concentration levels

below the EP toxicant levels may pose a hazard (54 FR 48490) ignores an important fact. After a waste is treated to meet an applicable standard and it remains hazardous, it still must be deposited in a Subtitle C facility designed essentially not to permit migration of hazardous constituents. If the waste is not hazardous, it may be placed in a Subtitle D facility subject to such restrictions as Congress deemed necessary for nonhazardous wastes.

EPA's proposal to require treatment below characteristic levels essentially applies Subtitle C standards and restrictions to what were intended by Congress to be Subtitle D wastes, thereby imposing the hazardous waste regulatory regime on nonhazardous wastes. The Agency's proposed interpretation ignores the fact that if a person is seeking to land dispose nonhazardous waste, the land disposal restrictions do not apply. Because the land disposal restrictions do not apply to such wastes, there is no need to obtain any exception from fully satisfying the pretreatment requirements of Section 3004(m) beyond the levels to which the land disposal restrictions of Section 3004(g) originally apply. The commenters stated there is no legal basis for such a proposal and EPA should abandon it.

Tricil Environmental Services (091-pp.9-10), Allied (267-p.10), and Browning-Ferris (214-p.9) continued to state that assuming that EPA has the power to impose treatment standards under Section 3004(m) to levels below the characteristic levels does not resolve the question whether EPA has, in the first place, the authority to subject to the land disposal restrictions a waste that is not a hazardous waste when disposed of. These commenters stated that they are not arguing that EPA has no power under Section 3004(m) to set pretreatment standards at levels below the characteristic levels, as long as there is a prohibition on the land disposal of such waste that still applies. However, characteristic wastes treated prior to disposal so that they cease

being hazardous wastes are not subject to the restriction on land disposal contained in Section 3004(g), and therefore such wastes never become subject to Section 3004(m). The only obvious resolution to this issue is for the Agency to re-propose the levels defining characteristic hazardous waste.

Agency Response

EPA agrees that if a person is seeking to land dispose a nonhazardous waste, the land disposal restrictions do not apply. However, the determination as to whether or not a waste is hazardous must be made at the point of generation, not at the point of disposal. Furthermore, once a waste is determined to be characteristically hazardous, it is then subject to the treatment requirements established under Section 3004(m), whose criteria for adequate treatment permit standards below those of the characteristic level. A waste that becomes subject to the treatment requirements of Section 3004(m) must meet that standard prior to land disposal and does not become exempt from further treatment merely by meeting the characteristic level.

Summary of Comments

Several commenters (Allied-Signal (267-p.10), Tricil Environmental Services (091-p.10), and Browning-Ferris (214-p.10)) disputed EPA's claim that its interpretation of Section 3004(m) is implicitly supported by the authority in Section 3004(m) to require that treatment be accomplished by specified treatment methods (methods that might not be able to be cut off precisely at the characteristic level). The possibility that a treatment method might result in treatment below a characteristic level does not mean that Congress

intended EPA deliberately to impose treatment methods for that purpose or to set treatment standard concentration levels lower than a characteristic level. Rather, it is more likely that Congress gave EPA the option of requiring treatment methods in lieu of concentration levels simply because Congress foresaw that in some instances EPA might not be able to specify a concentration level that substantially reduces or minimizes risk (see S. Rep. No. 284, 98th Cong., 1st Session 16-17 [1983]). This is not normally the case with respect to characteristic wastes; EPA has already decided that wastes that do not exceed specified characteristic levels do not pose a substantial hazard. The fact that some treatment methods cannot be neatly curtailed is, at best, a matter of factual happenstance; it is hardly a basis for constructing a sweeping new regulatory program.

Agency Response

The Agency emphasizes that its authority to specify a treatment method under Section 3004(m) is only one element in support of the general authority to require treatment to below characteristic levels. However, EPA's discretion to impose such methods is not limited in the way the commenters suggest. EPA can impose a method as long as the ultimate Section 3004(m) standard is satisfied. While the Agency is setting concentration-based treatment standards below the characteristic levels only for EP toxic pesticides non-wastewaters, it is specifying a treatment method for EP toxic pesticide wastewaters. The Agency reiterates that the authority to specify treatment methods for characteristic wastes is likely to result treatment to concentrations below the characteristic levels.

Summary of Comments

American Petroleum Institute (168-p.67) stated that EPA's suggestion that the language in Section 3004(m) allowing imposition of treatment methods for characteristic wastes meant that Congress did not intend to curtail treatment standards by reference to the definition of hazardous waste (54 FR 48490) is inconsistent with EPA's own 1986 land disposal "framework" proposal to base treatment standards on BDAT but with risk-based floors. (51 FR 1611). EPA still concedes it has authority under Section 3004(m) to set such risk-based floors. (51 FR 405786). Yet if Section 3004(m)'s reference to treatment standards precludes cutting off treatment standards at risk-based characteristic levels, as EPA now suggests, how could EPA justify risk-based floors as a viable option in the framework rule?

Moreover, API stated that Section 3004(m) specifically authorizes treatment standards in the form of concentration levels or treatment methods that would minimize health and environmental threats. As EPA itself has concluded, that language indicates that Congress also contemplated some cases where no treatment is necessary to meet a Section 3004(m) standard for allowable land disposal. (51 FR 1616). Thus, the statute itself indicates that no additional treatment should be required when a waste is treated to a level where there is no significant threat that needs to be minimized. Treatment down to a characteristic level presents just such a case.

Agency Response

The Agency responds that, for toxic wastes, the characteristic levels are not levels below which there are no significant risks to human health and

the environment. Rather, the EP (and TCLP) limits are levels at which wastes clearly are hazardous (see 45 FR 33084, May 19, 1980; and 51 FR 21648, June 13, 1986). Thus, EPA includes this clearly hazardous waste in the Subtitle C management system. The Agency does not believe, however, that this characteristic level is necessarily a limit to the treatment objectives in Section 3004(m) of RCRA. The Agency has recently discussed its rationale for a technology-based approach to treatment standards under section 3004(m) which does not cap the treatment requirement by normal Subtitle C levels of an acceptable level of risk (see 55 FR 6640, February 26, 1990).

Specifically, the Agency noted the Congressional objective in the land disposal restrictions to reduce the long-term uncertainties associated with land disposal. One specific feature noted as a source of uncertainty is the behavior of the waste in the land disposal unit itself. The extent of migration from the unit itself is, in fact, the general basis for the dilution and attenuation factors that serve to make the toxicity characteristic levels several orders of magnitude higher than the underlying health-based standard. This fact is important in the Agency's prior decision to rely on the underlying health-based standard and not the characteristic level itself to determine whether a waste remains hazardous for purposes of no migration decisions under 40 CFR Part 148. There can clearly be further meaningful minimization of threats to human health and the environment by treating these wastes below the characteristic levels (see Hazardous Waste Treatment Council v. EPA, 886 F. 2d 355, 363 (D.C. Cir. 1989)).

Summary of Comments

Three commenters (Chemical Manufacturers Association (L007-p.3), OxyChem (138-p.3), and National Paint & Coatings Association (158-p.1)) stated that the Agency's "literal" interpretation of Section 3004(m)(1), that treatment standards are unbounded by normal Subtitle C jurisdictional limits, is impossible to reconcile with the actual language of Section 3004(m)(2) that requires hazardous waste management of BDAT treatment residues. EPA's reading of Section 3004(m) such that wastes may be treated to levels below which they cease to be hazardous contradicts Congress' expectation that the residues of Section 3004(m) treatment will themselves be hazardous wastes, since Congress directs that they be disposed of in a land disposal facility meeting Subtitle C requirements.

Agency Response

The Agency disagrees with the commenter's position. A careful reading of Section 3004(m)(2) reveals that Congress did not, in fact, invariably expect the residues of treatment to be hazardous wastes themselves. On the contrary, Congress clearly expected that treatment residues would not exhibit hazardous characteristics as they are exempt from further restrictions from land disposal. The language of Section 3004(m)(2), "... such waste or residue thereof shall not be subject to any prohibition promulgated under subsection (d), (e), (f), or (g) and may be disposed of in a land disposal facility which meets the requirements of this subtitle," merely provides that the treatment residue may be disposed of in a Subtitle C facility; Section 3004(m)(2) does not preclude such disposal, however, nor does it require it.

Summary of Comments

American Paper Institute (095-pp.8-10) stated that EPA has misread the legislative history underlying Section 3004(m) and provided a statement by Senator Chafee illustrating that the authors of Section 3004(m) never intended that aggressive treatment would be necessary for characteristic hazardous waste or that EPA formulate treatment standards requiring treatment even after a hazardous characteristic was removed (130 Cong. Rec. S9178). The commenter further indicated that Congressional intent for treatment to below-hazardous levels never extended to characteristic and corrosive wastes, provided that those wastes are easily treated by simple neutralization and their characteristic does not reflect concentrations of metals, inorganics, or other constituents that are persistent, toxic, mobile, or bioaccumulative.

Agency Response

The Agency disagrees with the commenter and reiterates its belief that it is a permissible construction of the statute to require treatment below the characteristic levels. The Agency points out that EPA has determined that deactivation (i.e., neutralization) for corrosive wastes is appropriate treatment for these wastes.

Summary of Comments

In support of the Agency's proposed rule, the Environmental Defense Fund (125-pp.3-5) stated that the legislative history of Section 3004(m) indicates

a clear and unmistakable Congressional intent to require the use of the best available technology through the Section 3004(m) standards. Nowhere has Congress expressly or implicitly indicated an intent to cap treatment at the contaminant levels triggering a hazardous waste listing or characteristic. Significantly, EPA has not capped treatment requirements for listed wastes at delisting levels; in effect, the Agency has already determined that Congress did not intend to limit treatment requirements in this manner. The commenter concluded that both the express language of Section 3004(m) and its legislative history indicate that the Agency is compelled to require the treatment of characteristic wastes using best available technology irrespective of whether the treatment extends below characteristic levels.

Agency Response

The Agency is promulgating specified technologies for certain characteristic wastes that will likely render residues below characteristic levels. Furthermore, the Agency is promulgating concentration-based treatment standards below the characteristic level for EP toxic pesticide non-wastewaters. The Agency also reserves the authority to set such standards in future rulemakings.

7.2 Regulatory Issues

Summary of Comments

Several commenters (Fertilizer Institute (092-pp.10,11), Phillips Petroleum (080-p.1), Chemical Manufacturers Association (L007-p.4), ASARCO (269-pp.32,33), Synthetic Organic Chemical Manufacturers Association (108-p.9), Battery Council International (178-p.3), Lubrizol (184-p.1), ARCO (193-p.1), American Petroleum Institute (168-p.59), Unocal (233-p.3), Gulf Coast Waste Disposal Authority (151-p.5), Chevron (119-p.1), Texas Utilities Services (123-p.1), OxyChem (138-p.2), National Coat & Paintings Association (158-p.1), and RSR (162-p.9)) stated that EPA's proposal to require treatment below characteristic levels is at odds not only with EPA's authority under the statute, but also with EPA's own long-standing recognition of its Subtitle C authority.

- In the advance notice of proposed rulemaking for LDRs for Third Third wastes, EPA indicated that it did not have the authority to establish treatment standards below characteristic levels.

Wastes that are hazardous because they exhibit a characteristic are no longer hazardous if they are treated so that they no longer exhibit any of the characteristics. 40 CFR 261.3(c)(1) and (d)(1). It is possible that the use of available technologies will, for many of these wastes, result in a residual that no longer exhibits any of the characteristics. (In this case the waste is no longer subject to the requirements of Subtitle C of RCRA). (54 FR 1056, 1093 and 1095).

- EPA's regulations have always recognized that characteristic hazardous wastes are subject to Subtitle C regulation only when and to the extent

they actually exhibit a hazardous characteristic. The basic regulatory definition of the term "hazardous waste" specifically states that a characteristic waste is subject to regulation, "unless and until . . . it does not exhibit any of the characteristics of hazardous waste identified in Subpart C" (40 CFR 261.3(c) and (d)(1)).

- In developing land disposal restrictions for the California list wastes under RCRA Section 3004(d), EPA stated that "Section 3004(d) applies only to those wastes which are listed as hazardous . . . or exhibit one or more of the characteristics of hazardous waste." (51 FR 44718).
- In a later rulemaking, EPA specifically noted that if wastes exhibiting the characteristics of corrosivity "are treated to a pH greater than 2.0, they are no longer characteristic hazardous wastes and may be land disposed in a Subtitle D facility." (52 FR 25760, 25768).
- Current EPA regulations on characteristic wastes provide that when a characteristic waste mixes with other solid waste and the mixture is no longer hazardous by characteristic, the waste is no longer regulated under Subtitle C. (40 CFR 261.3(a)(2)(iii)).

Agency Response

The Agency agrees with the commenters that prior to regulation of the characteristic wastes under the land disposal restrictions a waste was no longer deemed hazardous when the waste ceased to exhibit a characteristic, and that a wide range of management scenarios were available to remove the characteristic prior to the point of disposal. That is still the case. However, this is not dispositive of the question of application of LDR

treatment standards. However, the mandate of Section 3004(m) and the ambiguity as to when hazardous wastes become prohibited clearly allows the Agency to require treatment standards that take into consideration a broader set of criteria than simply the characteristic level that originally made a waste subject to Section 3004(m) in the first place. EPA also notes that any prior inconsistent statements it has made in previous rulemakings regarding this issue were made before EPA was faced directly with the issue of establishing prohibitions and treatment standards for these wastes. EPA's position has thus evolved as its familiarity with the issue increased and was presented in a specific context. (EPA also notes that the commenter's arguments do not apply at all with respect to authority to impose a dilution prohibition, since this attaches to wastes that are hazardous.

The Agency believes that certain authorities granted under Section 3004 support the establishment of treatment standards below characteristic level where warranted to minimize threats to human health and the environment. Accordingly, EPA is establishing concentration-based standards below the characteristic level for EP toxic pesticide non-wastewaters. The Agency regards the prescribed concentration levels as necessary to minimize threats of these wastes to human health and the environment. Because the ability to treat these wastes is less matrix dependent than for other wastestreams, the Agency believes that the prescribed levels can be consistently achieved through available technology. Furthermore, because the affected wastestreams are cancelled pesticides, this requirement will not cause significant disruption to the regulated community. The Agency also notes that it is prescribing for certain other characteristic wastes a specified method of treatment that will lead to treatment below the characteristic level.

The Agency further believes that Congress' intent was for proper treatment of these wastes to occur prior to land disposal. Once proper treatment achieves concentrations less than the characteristic level, the waste is no longer hazardous and may continue to be disposed of in a Subtitle D facility.

Summary of Comments

RSR (162-p.9) stated that for each constituent there is some level of exposure that has no effect on humans. Protection against a chronic toxic effect is achieved by keeping exposure levels at or below this reference dose. (51 FR 21665). The fundamental premise upon which the EP is based is that the levels established for the constituents found in the EP are levels at which little or no adverse effects occur. EPA has defined the characteristic level to be the point at which a waste poses "a substantial present or potential hazard to human health or the environment . . . " (40 CFR 261.10(a)(1)(ii)). The commenter stated that, according to the Agency's own logic, requiring treatment below these levels is pointless.

Agency Response

For toxic wastes, the characteristic levels are not levels below which there are no significant risks to human health and the environment. Rather, the EP (and TCLP) limits are levels at which wastes are clearly hazardous. (See 45 FR 33084 May 19, 1980; and 51 FR 21648 June 13, 1986). The Agency does not believe that the characteristic level necessarily presents a limit to the treatment objectives in Section 3004(m) of RCRA. The Agency has recently

presented its rationale for a technology-based approach to treatment standards under Section 3004(m) wherein treatment requirements are not capped by normally acceptable levels of risk under Subtitle C. (See 55 FR 6640, 6641-2 February 26, 1990).

Summary of Comments

American Petroleum Institute (168-p.60) stated that EPA anticipated setting "no land disposal" treatment standards for a number of characteristic wastes on the grounds that such wastes normally are treated to remove the characteristic, rendering them nonhazardous and thus eliminating the need to meet additional treatment standards prior to land disposal. (54 FR 1095). EPA also explicitly rejected the idea of setting a numerical treatment standard for certain corrosive characteristic wastes on the grounds that EPA lacked authority to do more than require elimination of the characteristic. (54 FR 1095).

Agency Response

The Agency reiterates its view that it possesses the authority under RCRA to require treatment to concentrations below the characteristic levels. EPA is in fact establishing concentration levels below the characteristic level for EP toxic pesticide non-wastewaters. The Agency is also requiring the use of specified methods for treating certain characteristic wastes, and, in effect, treatment below the characteristic level is likely to occur.

In general, the Agency has revised its approach to regulation of the characteristic wastes significantly since the advance notice provided in the

Second Third proposed rule; specifically, the Agency has revised all treatment standards expressed as "no land disposal" (see chapter 19 of this document), and thus did not promulgate such treatment standards for characteristic wastes as discussed in the Second Third proposed rule.

Summary of Comments

The U.S. Department of Energy (198-p.17) dismissed the Agency's argument that it can require treatment to below characteristic levels simply because it has in the past required removal of constituents below characteristic levels. The commenter noted that, historically, EPA has only considered levels below characteristic levels for constituents contained in listed hazardous wastes and where delisting is sought. In delisting wastes, other factors, including volume of waste, are used to determine if levels lower than the characteristic are of concern. Furthermore, the commenter noted that with regard to clean closures the definition of "clean" in this case is a function of environmental hazard or risk, and not solely on the continued presence of constituents at levels below the characteristic level. Moreover, the commenter stated that clean closures are usually conducted in order to allow the land area to be used for non-disposal purposes; disposal of treated characteristic waste residues, on the other hand, will likely be deposited in a landfill with limitations on further use.

Agency Response

EPA agrees with the commenter that the Agency's decisions to require treatment below characteristic levels in the past have involved a number of factors. However, the Agency reiterates that these past decisions, in turn, are only one factor in supporting the Agency's authority to require treatment below the characteristic levels. Section 3004(m) provides the authority to minimize short-term and long-term threats to human health and the environment. In the case of EP toxic pesticide non-wastewaters, the Agency is promulgating concentration-based treatment standards below the characteristic levels. For certain other characteristic wastes, EPA is prescribing a specified method of treatment which will, in effect, lead to treatment below the characteristic level.

Summary of Comments

Several commenters (Tyler Pipe (131-p.2), Precious Metals Producers (203-p.7), BP Chemicals (216-p.22), and Gulf Coast Waste Disposal Authority (151-p.5)) noted EPA's concession that it cannot require disposal in Subtitle C units of characteristic wastes that are treated beyond the characteristic thresholds (54 FR 48495 and 48493). This position is inherently contradictory to EPA's proposed BDAT standards for characteristic wastes that extend EPA's regulatory authority over characteristic wastes beyond the point at which they are no longer hazardous. Although EPA's own rules assert its continuing authority over listed hazardous wastes, even if they cease to exhibit hazardous characteristics, those rules contain no similar provisions regarding characteristic wastes.

Agency Response

The Agency refers the commenters to Section 7.1 of this document concerning EPA's authority to require treatment to below characteristic levels. With respect to EPA's inability to require disposal of nonhazardous residuals in Subtitle C facilities, the Agency notes that it is not changing existing regulations concerning disposal of wastes treated to levels below the characteristic in Subtitle D facilities, and further points out that disposal of these post-treatment residuals in Subtitle C units is not precluded, it simply is not required. Indeed, EPA believes that for capacity reasons it may not be desirable to require Subtitle C disposal of characteristic waste residues once they have been effectively treated to Section 3004(m) standards.

7.3 Related Court Decisions

Summary of Comments

The following commenters noted that the Agency used the recent decision by the D.C. Circuit Court in Hazardous Waste Treatment Council v. EPA ("HWTC III") to support its assertion that it has the authority to set treatment levels that are below the characteristic levels: (Tricil Environmental Services (091-p.11), Fertilizer Institute (092-pp.11-12), American Paper Institute (095-p.6), Chemical Manufacturers Association (L007-p.7), ASARCO (269-p.30), Allied-Signal (267-p.11), Synthetic Organic Chemical Manufacturers Association (108-p.8), Petroleum Marketers Association of America (205-p.3), Utility Solid Waste Activities Group (204-p.9), Rohm & Haas (194-p.28), Owens (195-2), Precious Metals Producers (203-p.7), SCM Chemicals (196-p.4), American Petroleum Institute (168-p.67), Browning-Ferris (214-p.10), Unocal (233-p.3), National Paint & Coatings Association (158-p.1), and RSR Corp. (162-p.7)). These commenters stated that this case does not support the Agency's position, as expressed in the proposed rule. These commenters indicated that the court decision applied only to wastes over which EPA has jurisdiction; it does not give EPA the right to regulate wastes that are clearly beyond the reach of the regulations. In that decision, the Court upheld EPA's authority to establish BDAT levels for listed wastes, regardless of whether that level was below levels associated with health risks or levels at which EPA had previously delisted the waste in question. Because this case dealt with BDAT for listed hazardous waste, no question concerning EPA's regulatory authority was at issue. These commenters stated that the HWTC III decision is irrelevant to the issue of whether EPA can set treatment standards

for characteristic wastes below the characteristic levels.

These commenters held that EPA's proposal, in contrast to HWTC III, attempts to extend the reach of the land disposal restrictions beyond hazardous wastes by establishing BDAT levels for wastes that are beyond that authority; HWTC III provides no support for such a proposal. Indeed, the Court recognized that "hazardous wastes," as defined by the statute, are the only wastes legally subject to Section 3004(m) treatment standards. Although the Court reached this conclusion with respect to listed wastes, the decision recognized that a waste can be delisted at constituent concentrations above BDAT standards and is no longer subject to BDAT standards. The commenters concluded that the case supports the view that delisted wastes are not subject to treatment standards, and therefore, by implication, wastes that cease to exhibit characteristics that make them hazardous are also not subject to treatment standards.

Agency Response

The Agency understands the structure of the commenters' argument but disagrees with the conclusion. The commenters assert that the decision in HWTC III cannot be used to justify establishing BDAT levels for characteristic wastes below levels associated with health risks or the characteristic level because the decision only applies to wastes over which the Agency has jurisdiction. The commenters argue that the authority to establish BDAT levels at any level deemed protective of human health and the environment ceases once a waste is no longer hazardous and therefore no longer subject to regulation under Subtitle C.

When the logic behind the decision in HWTC III is applied to a characteristic waste, obviously any BDAT below the characteristic level would render the waste "nonhazardous." But this is solely a function of the way in which the characteristic waste is defined, i.e., by a certain level, and not a function of the relationship between the level of treatment required by EPA and the level of protection of human health and the environment gained by that treatment. The logic behind the decision in HWTC III was that the Agency may establish treatment levels that are effective, demonstrated, and available and that are protective of human health and the environment, without regard to previously defined levels or the basis for their definition (health-based or other). The opinion gives some independent force to Section 3004(m). This logic does not disappear simply because the method for defining a waste as hazardous in the first instance is by means of a level. The Court provided that EPA has the authority to require treatment levels that protect human health and the environment.

Summary of Comments

Several commenters (American Paper Institute (095-pp.4-5), ASARCO (269-p.1), American Mining Congress (201-p.13), GNB (202-p.8), Rhone-Poulenc (207-p.2), Union Camp (227-p.1), Utility Solid Waste Activities Group (204-p.9), and Cyprus Copper (121-p.3)) stated that EPA's proposal would subject to treatment standards solid wastes that are no longer hazardous by definition, because they would have been treated to a level below the threshold for the hazardous characteristic which they initially exhibited. Therefore, EPA's proposed treatment standard for characteristic wastes undercuts the Agency's own definition of these characteristics and exceeds the Agency's statutory

authority by attempting to regulate "solid wastes" as if they were "hazardous wastes." In support of this view, these commenters cited the United States Court of Appeals for the District of Columbia Circuit which held that RCRA's definition of solid waste (and, by implication, hazardous waste) is jurisdictional and that the Agency may not regulate under RCRA Subtitle C wastes which were not within this jurisdictional definition (American Mining Congress v. EPA, 824 F.2d 1177, 1179, 1189 [1987]; see also American Iron and Steel Inst. v. EPA, 886 F.2d 390, 395 [1989]). Indeed, EPA has recognized that "section 3004(u) is the only provision in Subtitle C that reaches beyond the universe of hazardous waste" (52 FR 45788 and 45790). Moreover, the commenters indicated that EPA's proposed extension of treatment standards to solid wastes that no longer exhibit a hazardous characteristic conflicts with the Agency's long-standing regulations that limit the scope of its hazardous waste program.

Agency Response

As discussed at length in the preamble, EPA disagrees that the LDR statutory provisions present an absolute jurisdictional ban due to unambiguous statutory language.

Summary of Comments

The Utility Solid Waste Activities Group (204-p.9) stated that none of the reasons for treatment below characteristic levels offered by EPA justifies extension of the Agency's regulatory grasp. EPA cannot merely point to RCRA's "overriding goals" to justify its position. The fact that the Agency's

reading of Section 3004(m) is purportedly consistent with the goals of the statute, or would enable the Agency to regulate wastes or constituents that would otherwise be unregulated (54 FR 48490), does not permit the Agency to go beyond the limit of Congressionally prescribed authority. The unanimous Supreme Court, in Board of Governors of the Federal Reserve System v. Dimension Financial Corp., 474 U.S. 361 (1986), rejected a similar argument by the Federal Reserve Board. In this case, the Board had attempted to extend its regulatory authority over banks to reach "non-bank banks" that offered similar financial services. The Court held that, although such an extension might make regulatory sense, it was not authorized by the Board's enabling statute and was, therefore, illegal. The commenters stated that this Federal Reserve Board case (as well as American Mining Congress v. EPA) demonstrates that an agency may not extend its jurisdiction into areas not granted to it by Congress simply because the area is similar to, or in the spirit of, areas the Agency does have the authority to regulate.

Agency Response

The Agency does not believe that it is attempting to extend its regulatory authority beyond that prescribed by Congress. Nor is this a type of Chevron I situation, as the commenters assert. As explained in Section 7.1 of this document, the point of generation approach, the stipulation that wastes defined as hazardous must meet specified standards before disposal, and the authority to require treatment to established BDAT levels regardless of health-based levels, are all elements of this rule that have been adopted by the Agency in prior rules. The requirement, therefore, that waste that is characteristically hazardous at the point of generation be subject to

treatment standards under Subtitle C to below characteristic levels does not represent an overextension of EPA's regulatory authority. The statute does not address this precise question, and EPA's resolution of this issue reasonably accommodates the enumerated goals and policies.

Summary of Comments

Several commenters (American Paper Institute (095-p.6), ASARCO (269-p.34), Synthetic Organic Chemical Manufacturers Association (108-p.8), and Battery Council International (178-p.4)) noted that the recent court decision (i.e., HWTC III) requires EPA to demonstrate that the stringency of the proposed treatment levels are justified on the basis of a documented threat to human health and the environment. These commenters stated that although the D.C. Circuit Court upheld EPA's selection of technology-driven treatment standards or methods rather than risk-based screening levels, the Court cautioned that

This is not to say that EPA is free, under Section 3004(m), to require generators to treat their wastes beyond the point at which there is no "threat" to human health and the environment. That Congress' concern in adopting Section 3004(m) was with health and the environment would necessarily make it unreasonable to promulgate treatment standards wholly without regard to whether there might be a threat to man or nature (HWTC III, at 1239).

The commenters continued to state that EPA presumably originally chose characteristic levels posing a substantial present or potential hazard to human health and the environment when improperly treated, stored, transported, disposed of or otherwise managed (40 CFR 261.10(a)). Therefore, solid wastes whose levels are not within these chosen limits do not pose a threat and may be managed without regard to hazardous wastes regulations in general, and, in

particular, the RCRA Section 3004(g) land disposal prohibitions. These commenters conclude that the proposal to require treatment beyond characteristic threshold levels therefore would amount to "treatment for treatment's sake," which the D.C. Circuit Court "would have little hesitation in concluding . . . was unreasonable" (HWTC III, at 1239). Put another way, the Court held that standards based solely on the level of reduction achievable by technology, i.e., BDAT, are not appropriate where, as here, other risk based performance levels have been recognized as adequate to minimize threats to human health and the environment.

Agency Response

The Agency reaffirms its view that it has authority under RCRA to require treatment below the characteristic level so that threats to the environment and human health are minimized. Accordingly, the Agency is setting concentration-based treatment standards below the characteristic level for EP toxic pesticide non-wastewaters. For certain other characteristic wastes (EP toxic pesticide wastewaters), EPA is specifying a method of treatment which will result in treatment to below the characteristic level. Furthermore, the Agency reserves the authority to set treatment standards in future rulemakings to below the characteristic level, based on new or updated data. Please refer to section 7.1 for additional clarification. The commenters also fail to mention that the HWTC III Court specifically rejected the view that characteristic levels create a health-based cap on permissible treatment standards (886 F 2nd. at 363).

Summary of Comments

Several commenters (American Paper Institute (095-p.8), ASARCO (269-p.34), Utility Solid Waste Activities Group (204-p.10), and Battery Council International (178-p.4)) further noted that the Regulatory Impact Analysis supporting this proposal did not identify any substantial human health benefit (or risks avoided) from prohibiting the land disposal of corrosive characteristic wastes -- let alone treatment below the characteristic threshold -- and did not even quantify any resource or ecological benefits. This lack of documentation does not comport with Judge Silberman's observation in HWTC III that "it is incumbent upon EPA to identify the incremental 'threats to human health and the environment' that it hopes to address by opting uniformly for more stringent technology-based standards in lieu of health-based standards of whatever origin" (HWTC III, at 1249). EPA's statement that wastes may present a hazard when below the characteristic levels (54 FR 48490) similarly fails to adequately justify the need for treating wastes to levels far below those that classify them as hazardous in the first place. A factual finding is necessary to resolve the question of what treatment level is needed to eliminate the threat. Authority to set a standard below the characteristic level is not authority to adopt the most stringent standard technologically feasible without at least some finding that it is necessary to eliminate a threat to human health and the environment.

Agency Response

Given the Agency's final disposition of the issue of treatment standards for corrosive wastes, much of this comment is now moot. The Agency has

identified less than one health case avoided and eleven individuals no longer exposed to non-carcinogen contaminants at a level exceeding its reference dose (RfD) by restricting the continued land disposal of D002 (corrosive) wastes. This does not take account of toxic constituents that may be present in the wastes. It also does not take into account the substantial environmental harm potentially caused by potential migration of strong acids and bases. Chronic carcinogenic and non-carcinogenic risks brought about by D002 wastes are caused by hazardous constituents present in the waste (e.g., dissolved toxic metals). The Agency believes that there are other benefits resulting from restricting corrosive wastes from land disposal that may not appear in these health benefits. For example, there may be acute health effects associated with the management of untreated corrosive wastes.

In the court decision for Hazardous Waste Treatment Council v. EPA, the panel from the Court of Appeals for the District of Columbia Circuit held that the literal language of Section 3004(m) does not mandate a risk-based or health-based approach for selecting treatment standards, and that the Agency's interpretation that treatment standards were to be technology-based was reasonable. The Court concluded, however, that EPA had failed to adequately explain its policy preference for technology-based treatment standards, over the proposed approach based on screening levels. EPA, therefore, clarified its selection of technology-based standards over risk-based screening levels in the Federal Register (Volume 55, February 26, 1990, p.6640). This explanation was accepted by the Court (including Judge Silberman), which dismissed all petitions for review on March 15, 1990.

7.4 Support for Option I of the Proposed Rule

Summary of Comments

In support of the Agency's proposed rule, the Environmental Defense Fund (125-pp.2-3) (joined by Rollins Environmental Services (124-p.6)) stated that not only does EPA possess the requisite legal authority to establish BDAT standards below characteristic levels, but also that the relevant statutory provisions require the Agency to set such standards. The commenter cited RCRA Section 3004(m), which directs EPA to promulgate "regulations specifying those levels or methods or treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." The commenter continued to state that, as a matter of law and fact, treatment only to characteristic levels cannot satisfy this statutory mandate because threats to human health and the environment are not "minimized" when wastes contain constituents at or approaching characteristic levels. This position is supported by the following EPA policies and positions:

- EPA has listed wastes as hazardous where contaminant concentrations are below characteristic levels;
- Listed hazardous wastes exhibiting characteristic levels of contaminants could not be delisted under existing EPA delisting methodologies; and
- Characteristic levels are not stringent enough to be considered threshold levels of safety, but instead are levels indicating almost certain danger to human health and the environment.

EDF also stated that threats to human health and the environment are not minimized for wastes above levels where treatment is available that would result in substantially lower contaminant levels.

Agency Response

EPA agrees with the commenter that it is a permissible construction of the statute that the Agency may require treatment to below characteristic levels and that such standards may be necessary for certain wastes. In fact, EPA is promulgating specific technologies for the treatment of certain characteristic wastes that are likely to produce residues below the characteristic level. Furthermore, EPA is establishing concentration-based standards below the characteristic level for EP toxic pesticide non-wastewaters. The Agency regards the prescribed concentration levels as necessary to minimize threats to the environment and human health. Because, the ability to treat these wastes is less matrix dependent than for other wastestreams, the Agency believes that the prescribed levels can be consistently achieved through available technology. Because the affected wastestreams are cancelled pesticides, EPA believes that this requirement will not be disruptive to the regulated community. New methods, and available technologies may cause the Agency to revise treatment standards for other wastes in the future, pursuant to its present authority.

Summary of Comments

The Hazardous Waste Treatment Council (172-pp.26-31) strongly supported the Agency's proposed approach of setting BDAT levels for the characteristic wastes using methods or levels of treatment below that of the existing characteristic. The commenter stated that EPA's approach is

- Not only justified by the plain language of the statute but is reinforced by the legislative history;
- Consistent with the Agency's long established philosophy of using characteristic wastes as a screening level, not as the ultimate level of protection; and
- Necessary to ensure the overall integrity of the land disposal ban by preventing vast disparities between the treatment standards for listed and characteristic wastes.

Although supportive of EPA's proposal, the HWTC recognized that the Agency's position results in disparities regarding the levels of treatment required for characteristic versus listed wastes and the residue management standards for those respective categories. Moreover, the proposed rule leaves questions regarding the relationship between BDAT and the levels at which wastes are designated as either listed or characteristically hazardous. These problems are symptoms of underlying discrepancies and disparities inherent in the system by which wastes are designated as hazardous or nonhazardous (i.e., listed and characteristic wastes and their associated levels and standards). Additional concerns about the disparities between the management of listed and characteristic waste treatment residues are highlighted by the fact that

characteristic waste levels, according to the commenter, are far too lax and there are vast differences in liner and container requirements between Subtitle C and Subtitle D facilities.

However, the HWTC stated that these disparities alone cannot be the basis to compromise a separate and independent requirement in the statute; namely, that waste as generated must be treated to BDAT before it can be land disposed. The land disposal ban must not be compromised despite the fact that EPA has never revisited the characteristic waste levels since 1980. This statement holds despite the Agency's recognition of the fact that the characteristic levels are not protective and that significant threats to public health remain even once the characteristic is removed. The commenter indicated that the setting of BDAT for characteristic wastes consistent with Section 3004(m) forces, via the land disposal ban, what the Agency has been unwilling to initiate through changes to the characteristic definitions.

Agency Response

The Agency recognizes that there are disparities between the treatment standard concentrations for constituents in listed waste versus characteristic waste. The Agency notes that there is a wide variability in the waste matrices for characteristic wastes. The Agency has been unable to develop treatability groups and determine the most effective treatment for each group in this rulemaking. In comparison, treatment standards for listed wastes are based on more complete data for a readily definable waste matrix. The different approaches to deriving treatment standards for these wastes accounts for the disparity in the levels. The Agency reserves the ability to revise these standards in future rulemakings and perhaps reduce the discrepancies

noted by the commenter.

Summary of Comments

Environmental Systems (188-p.1) strongly supported EPA's proposed rule. It stated that requiring treatment of characteristic wastes only to the original characteristic level would pose critical environmental problems and conflict with the basic legislative policy underlying HSWA. EPA's proposal properly balances environmental protection with considerations of practicality and implementability. While treatment is required below the characteristic level (addressing the dangers posed by hazardous constituents other than those directly linked to the original characteristic), the residues of this treatment do not necessarily require disposal in Subtitle C land disposal facilities. This approach limits the costs and potential economic disruption and avoids capacity problems at Subtitle C land disposal facilities.

Agency Response

EPA agrees with the commenter that requiring treatment of characteristic wastes to below the characteristic level would address dangers posed by hazardous constituents other than those directly linked to the original characteristic level. EPA, however, did not propose requirements that directly address such other hazardous constituents. To address added constituents in characteristic wastes, EPA must assess specific categories of characteristic waste matrices. EPA does not have sufficient information at this time to take such an approach.

Despite some effort for treatment standards below the characteristic levels, EPA has modified the proposal so treatment standards expressed as a concentration level below the characteristic level are set only for EP toxic pesticide non-wastewaters. While treatment standards are based on the performance of the technologies as proposed, the individual standards have been revised to reflect data that the wastestreams have wide variability in their ability to meet the standards. Information from the comment period has shown a number of characteristic waste matrices that cannot be treated to the proposed levels.

EPA is not in a position to set out a great number of new treatability groups in this proposal. Consequently, the level EPA determines is achievable for the range of waste for a given characteristic code reflects matrices that are more difficult to treat. Thus, under the final rule, treatment standards expressed as concentration levels are set at or above the characteristic levels for most wastes, and the Agency is setting specified treatment technologies for certain characteristic wastes.

Summary of Comments

The Environmental Defense Fund (125-pp.5-6), and (L280-pp.1-3) stated that, even assuming that EPA has the discretion to limit treatment to characteristic levels, there is no legitimate policy basis for doing so. Wastes containing contaminants at concentrations approaching characteristic levels can pose a substantial risk to human health and the environment. Only by requiring best available treatment of characteristic wastes, irrespective of characteristic levels, can EPA ensure protection of human health and the environment and otherwise comply with the objectives of RCRA Sections

1003(a)(4) and (5).

Agency Response

The Agency agrees that, for toxic wastes, the characteristic levels are indeed levels at which significant risks to human health and the environment remain. There can clearly be further meaningful minimization of threats to human health and the environment by treating these wastes below the characteristic levels (see Hazardous Waste Treatment Council v. EPA, 886 F. 2d 355, 363 (D.C. Cir. 1989)). The Agency believes that environmental benefits and reductions in short-term and long-term threat to human health and the environment will accrue in promulgating concentration-based standards below the characteristic levels for toxic wastes and EPA has the authority to promulgate standards reflecting this position. Moreover, those standards that require a treatment method will often result in treatment to well below the characteristic levels. However, for the non-toxic characteristic waste groups, the Agency believes that the wide variability in the available treatment data indicate that concentration-based treatment standards at or above the characteristic levels are appropriate for the time being. The Agency reiterates that it believes that it has the authority to revise the treatment standards to below the characteristic levels for non-toxic characteristic wastes, and may do so in the future based upon new data.

Summary of Comments

USPCI (137-p.1) and Waste Management (159-p.68) supported EPA's position in recognizing that Section 3004(m) requires treatment of hazardous waste to

below the characteristic level. These commenters stated that characteristic levels, particularly the EP toxic levels, were intended as a screening level or "first pass" at regulation and that Section 3004(m) directs the Agency to require hazardous wastes (including characteristic wastes) to be treated by the best demonstrated available technology, not merely to levels below the EP toxicity levels.

Agency Response

The Agency notes the commenters' support.

7.5 Hazardous Versus Solid Waste Issues

Summary of Comments

Several commenters (RMT (049-p.1), Mill Service (089-p.2), American Paper Institute (095-p.11), ASARCO (269-p.35), Kennecott (102-p.9), Association of State and Territorial Solid Waste Management Officials (157-p.2), American Mining Congress (201-p.19), Department of Energy (198-p.17), Petroleum Marketers Association of America (205-p.3), Battery Council International (178-p.3), Wheland Foundry (104-p.1), GNB (202-p.8), Rhone-Poulenc (207-p.2), American Foundrymen's Society (222-pp.4-5), American Petroleum Institute (168-p.63), Cyprus Copper (121-p.3), and Westinghouse (167-p.3)) argued that the Agency's approach would create an inequity between the way two wastes of identical characteristics are managed. Wastes with concentrations slightly below the characteristic level will not be regulated at all, while those treated significantly below the characteristic level will be required to comply with extensive certification requirements and consequently may be avoided by Subtitle D facility operators in spite of the waste's suitability for those facilities. For example, EPA's proposal would impose substantially different regulatory requirements for aqueous solid wastes whose pH characteristics are initially very similar. Treatment standards lower than characteristic levels would result in inconsistent regulation of solid wastes that exhibited some measure of a characteristic, but not enough to render them hazardous, compared to identical wastes that were initially hazardous because of a characteristic, but whose characteristic properties were reduced below regulatory thresholds. With this proposal EPA creates an arbitrary and confusing double standard for characteristic

hazardous waste management with one standard to enter the system and another to exit.

Cyprus Copper (121-p.3) further stated that the Agency's proposal would raise the constitutional issue of equal protection under the law. The commenter constructed the following scenario. Assume two below characteristic level wastes are generated by two different facilities. The wastes are identical in every respect, except for one waste's prior hazardous characteristic. The waste with the prior hazardous characteristic has been treated to below the characteristic level, but not to BDAT standards. The second waste is untreated. EPA proposes to impose continuous, expensive, and complex treatment on the one facility's partially treated solid waste, without imposing the same treatment on the other facility's untreated solid waste. The commenter stated that this policy violates the principal of equal protection. EPA cannot justify requiring treatment for wastes that no longer exceed the characteristic thresholds, while allowing identically threatening waste that never exceeded those thresholds to go completely unregulated. Moreover, it is unclear as to how EPA's approach to this issue would be particularly protective of human health and the environment.

Agency Response

The Agency believes that any regulations that draw such a definitional distinction will result in different requirements for wastes with similar contaminant concentrations. Nor are equal protection problems raised because the Agency's rules address some but not all of a potential environmental problem. The Agency recognizes that if treatment standards had been promulgated below the characteristic level, some confusion may have resulted.

However, the Agency believes that the environmental benefits to be gained by such an approach justify the additional confusion, if data show that lower levels can consistently be achieved. The Agency had widely varying data for the characteristic wastes and, for the majority of waste codes (with the exception of EP toxic pesticide non-wastewaters), did not believe the proposed standards could be achieved.

Summary of Comments

Texas Utilities Services (123-p. 1) stated that EPA's proposal, by requiring a treatment range for corrosive characteristic wastes between 6 and 9, would create a subset of existing "implied hazardous wastes," specifically those wastes exhibiting a pH from 2 to 6, and from 9 to 12.5. Wastes in this "implied hazardous" range are ignored by the Agency (i.e., they are not subject to treatment and may be land disposed in a Subtitle D facility). However, these wastes presumably present a threat to human health and the environment because wastes only slightly outside of this "implied" range must be treated to levels below the range and thereafter may only be disposed of in a Subtitle C facility. The commenter stated that EPA has proposed a paradox that is internally inconsistent; the Agency should either revise the definition of characteristic hazardous waste by re-proposing new characteristic levels or require treatment only to the present characteristic level.

Agency Response

The Agency is, in fact, requiring treatment only to the characteristic level for corrosive wastes. However, the Agency reiterates that EPA retains the authority to require treatment to below the characteristic level in future given new information on environmental threats and treatment methods.

Furthermore, wastes in what the commenter described as the "implied hazardous" range (pH from 2-6 and 9-12.5) are indeed not subject to treatment and may disposed of in a Subtitle D facility.

7.6 Post-Treatment Residues

Summary of Comments

Department of Energy (260-p.1), Environmental Management (283-p.1), and Institute of Chemical Waste Management (164-p.3)) indicated that, in the past, when a characteristic waste was treated to meet the characteristic tests, the material was no longer considered a hazardous waste and could be disposed of as a solid waste. In the new proposal, this does not appear to be the case. The regulations appear to require that even treated characteristic hazardous waste (treated to the required LDR treatment level well below the characteristic level) will still be required to be disposed of in a Subtitle C landfill. This commenter suggested that characteristic waste be treated as nonhazardous solid waste when it meets the treatment requirements for that waste. Once the waste has met the LDR treatment requirements and is outside the scope of regulation provided in 40 CFR 261, the material should be disposed of in accordance with solid waste regulations and not hazardous regulations. These commenters stated that the benefits of such an approach are that these wastes could then be handled as solid waste, or nonhazardous industrial waste, according to each State's solid waste regulations.

Agency Response

Characteristic wastes that have been treated to below the characteristic may continue to be disposed of in Subtitle D facilities. However, for those characteristic wastes with the treatment standards above the characteristic level, disposal in a Subtitle C facility is required if treatment achieves the

treatment standard but not the characteristic level.

Summary of Comments

Rollins Environmental Services (124-p.6) stated that the authority to require treatment to below the characteristic level is also applicable to the disposal of the residue. There is no environmental or legal reason under the LDR provisions of HSWA why treated listed wastes should go to a Subtitle C landfill, but treated characteristic wastes can go to a Subtitle D landfill. Furthermore, sending the residues to essentially unregulated Subtitle D facilities removes all tracking or regulatory control over the wastes. Accordingly, the commenter stated that EPA should require the disposal of treated characteristic wastes in the same type of facility as treated listed waste.

Waste Management (159-p.71) disagreed with EPA's position that a characteristic waste that meets the land ban treatment standard and no longer exhibits a characteristic exits the Subtitle C program at that point. Requiring the disposal of treatment residuals in Subtitle C units is essential for developing an environmentally consistent treatment and disposal scheme for all facilities managing the same types of hazardous wastes under Section 3004(m). Treatment of any hazardous waste, listed or characteristic, to the Section 3004(m) treatment standard is the precondition to land disposal, and then only in a Subtitle C facility. Any other conclusion places the integrity of the RCRA program into question. Any environmental program must be deemed deficient that has a policy requiring one type of waste (listed) to be treated to a level of 0.24 ppm lead prior to disposal in a Subtitle C landfill, while at the same time allowing another type of waste (characteristic) to be treated

to just below the EP toxicity level of 5 ppm and then disposed of in a Subtitle D landfill. The source of lead placed in a landfill, i.e., a characteristic waste or a listed waste, is irrelevant to the risk the lead poses to the environment.

In the rulemaking on compliance with RCRA clean closure standards, EPA itself recognized that the hazardous constituents resulting from the management of characteristic wastes pose as much of a threat to the environment as the residuals of listed wastes and should therefore be managed just as stringently. The commenter stated that to allow the residuals of characteristic wastes to exit the Subtitle C program is to consign them to disposal facilities that do not meet even the standards prevailing in new municipal solid waste landfills. Industrial nonhazardous landfills are currently subject to virtually no federal regulations and no federal standards have as yet been proposed for these facilities. (see Report to Congress: Solid Waste Disposal in the United States, Vol. I, [EPA/530-S-88-011]). Allowing disposal of treated characteristic hazardous wastes in an industrial nonhazardous waste landfill provides no assurance of adequate protection for human health and the environment.

Agency Response

The Agency is not changing the definition of hazardous waste in the Third Third final rule, and wastes that are treated to levels below the characteristic may be disposed of in a Subtitle D facility. However, characteristic hazardous wastes with treatment standards greater than the characteristic level must be land disposed in a Subtitle C facility if they meet the treatment standard, but do not achieve concentrations below the

characteristic level. The Agency further notes that a waste tracking system for treated characteristic wastes is being established in the Third Third rule.

The Agency is aware of the discrepancies noted by the commenter between treatment standards for constituents in listed wastes versus characteristic wastes. The Agency notes that there is a wide variability in the waste matrices for characteristic wastes, and that the treatment standards for these wastes reflect matrices that are more difficult to treat. The Agency has been unable to develop treatability groups and determine the most effective treatment for each group in this rulemaking. In comparison, treatment standards for listed wastes are based on more complete data and the best treatment technology that is available. The different approaches to deriving treatment standards for these wastes accounts for the disparity in the levels. The Agency reserves the ability to revise these standards in future rulemakings and perhaps reduce the discrepancies noted by the commenter.

Summary of Comments

USPCI (137-p.1) stated that treated residue of a hazardous waste treated according to the proposed BDAT standards must be disposed of in a hazardous waste landfill in compliance with RCRA Subtitle C. The commenter supported this argument by citing Section 3004(m):

If such waste has been treated to the level or method specified in regulations promulgated under this subsection, such waste or residue thereof . . . may be disposed in a land disposal facility which meets the requirements of this subtitle.

USPCI recognized that the crux of this issue turns on the interpretation of the word "may" in the above quote and offered the following argument in

support of its position. Congress prohibited the land disposal of characteristic waste under Section 3004(g). In order to require the treatment of hazardous waste necessary to permanently reduce the threat to human health and the environment, Congress also provided in Section 3004(m) whereby hazardous waste "may" be placed on the land provided two important conditions are met. The first condition is that the waste meets the applicable BDAT standard, and the second condition is that the disposal only occur in Subtitle C facilities. The commenter stressed that the word "may" cannot reasonably be interpreted to mean that, at the option of the generator, treated hazardous waste can be placed either in a Subtitle D unit or in a Subtitle C unit that provides the extra measure of environmental protection offered by the RCRA program.

Agency Response

The meaning of the word "may" in the context of the comment is ambiguous. As such, the Agency has chosen to interpret the phrase literally and, therefore, allow treated characteristic wastes to be disposed of in either a Subtitle D or Subtitle C facility, at the option of the generator, provided the waste has been treated to concentrations below the characteristic levels.

Summary of Comments

Browning-Ferris (214-p.14) emphasized that if the Agency adheres to its reading of Section 3004(m), then the statute requires the residues from treatment to be land disposed only in Subtitle C units. If the Agency further

accepts the logical statutory implication that the treatment residues can only go to Subtitle C facilities, it will have created a regulatory "dead end." There would simply be no way for characteristic wastes to exit the Subtitle C system, since there is no mechanism comparable to delisting available for characteristic wastes. Thus, the Agency cannot shore up its position on characteristic wastes by accepting the Subtitle C restriction of Section 3004(m)(2) without creating an even larger regulatory problem. The commenter stated that EPA's only viable option is to abandon its current position.

The commenter continued to state that the Agency needs to develop an environmentally based rationale for which residues of formerly characteristic wastes need to be restricted to Subtitle C disposal and which residues of such wastes do not. The Agency's proposal continues EPA's pattern of relying on definitional distinctions that have no environmental foundation. If there is an environmentally sound reason for restricting land disposal of certain residues to Subtitle C facilities (or freeing other residues from that requirement), the Agency should set the relevant standard uniformly. The approach in the proposal suggests that the Agency has no confidence in its toxicity tests or that environmentally based tests will be routinely undermined by new definitional distinctions.

Agency Response

The Agency is not changing existing definitions of hazardous waste, and characteristic hazardous wastes that no longer exhibit a characteristic may continue to be land disposed in a Subtitle D facility. Further, the Agency is not extending the derived-from rule in 40 CFR 261 to characteristic wastes; therefore, the residues of treated characteristic wastes may be disposed of in

a Subtitle D facility if they no longer exhibit a characteristic.

7.7 Applicability of the Derived-From Rule

Summary of Comments

American Mining Congress (201-pp.16-17) and Cyprus Copper (121-p.3) stated that EPA has consistently acknowledged that residues from the treatment of characteristic hazardous wastes are not subject to the land disposal restrictions program if they do not themselves qualify as RCRA hazardous wastes. For example, in establishing land disposal restrictions for California list wastes under Section 3004(d), EPA stated that "section 3004(d) applies only to those wastes which are listed as hazardous . . . or exhibit one or more of the characteristics of hazardous" (51 FR 44714 and 44718). This principle applies equally to characteristic wastes subject to regulation under Section 3004(g). If a characteristic hazardous waste is treated so that it no longer constitutes a hazardous waste, it may be managed as the nonhazardous waste. More recently, EPA echoed this view in an appellate brief filed in defense of the "mixture" and derived-from rule. According to the Agency:

[i]f residues resulting from the treatment of listed wastes were not hazardous wastes by virtue of the mixture or derived-from rule, they would not be subject to subtitle C or its land disposal ban, and could be land disposed without meeting treatment standards in facilities not subject to subtitle C. (Shell Oil Co. v. EPA, No 80-1532 (D.C. Circuit Court [1989])).

The commenters stated that residues from the treatment of characteristic wastes clearly cannot be hazardous by virtue of the mixture or derived-from rules. Thus, according to EPA's own logic, such residues are not subject to the land disposal restrictions program and may be disposed of in a Subtitle D

facility without further treatment (assuming the residues themselves do not exhibit a characteristic of hazardous waste). In both cases, the principle is the same: when a waste has been treated so that it no longer qualifies as a hazardous waste, the treated waste is not subject to Subtitle C regulation, including the treatment standards promulgated under Section 3004(m). The American Petroleum Institute (168-p.62) agreed and noted that EPA's suggested interpretation of Section 3004(m) is logically inconsistent with its view that the residues from treatment of characteristic wastes are not classified as hazardous under the derived-from rule.

Agency Response

The Agency, in principle, agrees with this comment. Residues of characteristic wastes that have been properly treated to levels below the characteristic may be disposed of in a Subtitle D facility and may be managed as a nonhazardous waste. The Agency is not changing the definition of hazardous waste in this rulemaking. The commenters further stated that a waste that has been treated to below characteristic levels is no longer subject to Subtitle C regulation, including the treatment standards promulgated under Section 3004(m). Only for EP toxic pesticides (non-wastewaters) for which the Agency promulgated concentration-based treatment standards below characteristic levels, waste would remain subject to the land disposal restrictions until it meets the standard, irrespective of the standard's relationship to the characteristic level. The Agency's goals are to ensure that wastes receive appropriate treatment to levels that minimize threats to human health and the environment.

Summary of Comments

Several commenters (Phillips Petroleum (080-p.1), Kodak (L005-p.3), and PPG (133-p.6)) stated that Congress did not intend that the listing and de-listing process associated with the derived-from rule apply to characteristic wastes. Therefore, the derived-from and "mixture" rules are not legally applicable to characteristic waste residues. These commenters generally felt that applying concepts of the derived-from rule to characteristic wastes was not Congress' intent and that applying the regulatory scheme for listed wastes to characteristic wastes is inappropriate. A waste either meets the characteristic level or it does not, but the fact that a waste was once characteristically hazardous should not affect its final disposition once it ceases to exhibit that characteristic.

Several commenters (Synthetic Organic Chemical Manufacturers Association (108-p.11), Tricil Environmental Services (091-p.5), Texas Utilities Services (123-p.1), ASARCO (269-p.32), Allied (267-p.7), Browning-Ferris (214-p.6), Amoco (240-p.7), and PPG (133-p.6)) stated that once a characteristic waste is treated to the extent necessary to eliminate the characteristic, the waste ceases to be a "hazardous waste" (40 CFR 261.3(d)). These commenters noted that this approach is in marked contrast to the definitional structure that exists for listed hazardous wastes. For listed wastes, a treated waste remains a hazardous waste -- by virtue of the derived-from rule -- unless and until it is delisted. In the context of listed wastes, therefore, there is no disparity between the jurisdictional reach of the land disposal restrictions and Section 3004(m). The listed waste remains subject, until delisted, to the full panoply of land disposal restrictions. For characteristic wastes, however, there is no derived-from rule, and the Agency is not explicitly

proposing to create one. There is, therefore, a significant limitation that the Agency must operate within (i.e., "the characteristic level defining hazardous waste). That limit applies to the land disposal restrictions themselves and guarantees that nonhazardous wastes may be land disposed without regard to Section 3004(m) or Section 3004 in its entirety.

Two commenters (108 and 123) agreed with the above arguments and added that EPA's new approach to characteristic hazardous wastes is akin to saying that wastes that have been "delisted" because they no longer meet the characteristic of hazardous waste, and are therefore not subject to RCRA, but must nonetheless meet BDAT requirements and are subject to land disposal restrictions. The commenters expanded on this theme, stating that with this proposal EPA is, for all practical purposes, circumspectly applying a derived-from rule to characteristic wastes, without adequate notice and opportunity to comment and without adequate consideration of the chaotic effect of this change on the regulated community.

Agency Response

Except for EP toxic pesticide non-wastewaters, which have a concentration-based treatment standard lower than the characteristic level, once a characteristic waste has been properly treated so that it no longer exhibits a characteristic, the waste is no longer subject to further Subtitle C regulation and may be disposed of as a nonhazardous waste in a Subtitle D facility (provided it does not exhibit additional characteristics resulting from treatment). The Agency is concerned, however, that proper treatment occur, and has adopted the point of generation approach discussed in Section 7.1 of this document. The Agency is not attempting, however, to extend the

derived-from and "mixture" rules to characteristic wastes in this rulemaking, which would result in the requirement that all characteristic wastes must be disposed of in Subtitle C facilities because they would never be considered nonhazardous.

Summary of Comments

The Colorado Mining Association (140-p.1) disagreed with EPA's argument that Section 3004(m) provides for the treatment of hazardous waste to below characteristic levels by virtue of the concept that once a material is determined to be a hazardous waste it will always be a hazardous material, regardless of its characteristic following treatment. The commenter stated that this approach essentially redefines the criteria for determining a characteristic waste and by doing so leaves the door open for the ultimate redefinition of all wastes outside of the 6 to 9 pH range as characteristic wastes.

Agency Response

The Agency reiterates that it is not changing the definition of hazardous waste, and that treated wastes that meet their LDR treatment standard and no longer exhibit a characteristic may be disposed of in a Subtitle D facility.

Summary of Comments

RSR Corp. (162-p.10) stated the EPA's attempt to impose the derived-from and "residues" rules on characteristic waste is unlawful because EPA has offered no justification on health or safety grounds for such a measure. Further, the commenter stated that the proposed rule would result in BDAT standards prescribed by the formerly characteristic hazardous waste to "carry though" to residues from management of characteristic waste. To this end, the commenter recommended that EPA establish the characteristic level as BDAT for D008 wastes and abandon its approach to the regulation of characteristic waste under the land ban restrictions.

Agency Response

The Agency reiterates that it is not changing the definition of hazardous waste, and that treated wastes that meet their LDR treatment standard and no longer exhibit a characteristic may be disposed of in a Subtitle D facility. In addition, the Agency believes that, especially for toxic wastes, there are significant risks to human health and the environment at levels below the characteristic levels. The levels for the EP (and TCLP) characteristics are levels at which wastes are clearly hazardous. (See 45 FR 33084 May 19, 1980; and 51 FR 21648 June 13, 1986). Threats to human health and the environment are not minimized for wastes above levels where treatment would result in substantially lower contaminant levels. There can clearly be further minimization of threats to human health and the environment, as required by RCRA, by treating these wastes below the characteristic levels. Also, the Agency notes the Agency retains its authority regulate

characteristic waste to below the characteristic level and has done so in the case of EP toxic non-wastewaters.

Summary of Comments

American Petroleum Institute (168-pp.19-20) agreed with EPA's position on the non-applicability of the derived-from rule to characteristic waste. The commenter believed, however, that this position is inconsistent with the Agency's view that RCRA Section 3004(m) authorizes characteristic waste treatment standards that are more stringent than the characteristic levels. The commenter stated that Subtitle C requirements are not applicable unless residues from wastes exceed a characteristic level, and thus it is illogical for EPA to require under Section 3004(m) that characteristic waste be treated to levels below the characteristic level.

Agency Response

EPA believes the recent decision in Hazardous Waste Treatment Council v. U.S. EPA, No. 86-1657 (D.C. Cir., September 15, 1989) supports the view that EPA has considerable flexibility in setting standards under Section 3004(m) and that Section 3004(m) can operate independently of other RCRA provisions.

7.8 Treatment For All Appendix VIII Constituents

Summary of Comments

Several commenters (Tricil Environmental Services (091-pp.9-10), Allied-Signal (267-p.10), American Petroleum Institute (168-p.64), Browning-Ferris (214-p.9), and Unocal (233-p.3)) stated that EPA's argument that a broad reading of Section 3004(m) was necessary to address treatment for all Appendix VIII constituents in the waste is without merit. Under the proper statutory reading, as long as the waste is a characteristic waste when land disposed, the disposal of that waste would violate Section 3004(g) unless it meets the treatment standards, which could be for any characteristic or for any Appendix VIII constituent. EPA's broad interpretation is not necessary in order to address the Appendix VIII constituents contained in characteristic hazardous waste. The broad reading is necessary, however, to address Appendix VIII constituents in nonhazardous wastes. EPA may believe that such a result is desirable for policy reasons, but that has no bearing on the legal question of whether Congress intended Section 3004 to authorize the Agency to apply land disposal treatment standards to nonhazardous wastes. These commenters stated that the statute is clear that EPA lacks the power under the land disposal provisions to reach such nonhazardous wastes and whatever Appendix VIII constituents they might contain.

Agency Response

The Agency believes that characteristic wastes may both exhibit a characteristic and contain significant concentrations of other hazardous

constituents. Simply treating the specific characteristic would make a waste no longer hazardous in a definitional sense, but the treatment would not necessarily fulfill the goal of Section 3004(m) to substantially diminish the toxicity of the waste and minimize threats to human health and the environment. EPA did not, however, propose requirements which address the treatment of hazardous constituents other than those comprising the specific characteristic (although the various proposed standards based on combustion technology, and to a lesser extent stabilization technology, will destroy or immobilize toxic constituents that are present in the waste). Listed wastes cover a narrower range of waste matrices and it is much easier to address standards for the full range of hazardous constituents in these matrices. In order to address additional hazardous constituents in characteristic wastes, EPA would need to assess specific categories of characteristic waste matrices. EPA does not have sufficient information at this time to take such an approach for most characteristic wastes. Thus, with a few exceptions, one of the beneficial measures of the point of generation approach is not present in this rulemaking. Moreover, EPA's general approach of requiring treatment for each characteristic would itself address a wide array of hazardous constituents once EPA sets treatment standards for wastes which have become hazardous by virtue of the new toxicity characteristic rule.

7.9 The Hazardous Waste Characteristic Definitions

Summary of Comments

Several commenters (BP America (098-p.5), Envirosafe (081-pp.6-8), Michigan Disposal (113-p.A-10), Masco Corp. (111-p.2), ASARCO (269-pp.31,34), Synthetic Organic Chemical Manufacturers Association (108-p.6), Association of State and Territorial Solid Waste Management Officials (157-p.1), Department of Energy (198-p.17), Wayne (130-17), Texas Utilities Services (123-p.2), and Merck (242-p.2)) stated that EPA's proposal to treat characteristic wastes to below characteristic levels is inconsistent with retaining the existing characteristic levels. The fundamental inconsistency arises because both of these levels are supposedly based on protecting human health and the environment. The Agency itself identified the characteristic levels that pose an actual or potential hazard to human health and the environment and thus meet the statutory definition of "hazardous waste." These levels of hazard are set forth in 40 CFR 261.21-.24 specifically for ignitability, corrosivity, reactivity, and EP toxicity.

The commenters stated that if EPA now contends that lower concentrations (or hazard levels) are necessary to protect human health and the environment, pursuant to its authority under Section 3004(m), then such a position is inconsistent with the rationale of the prior rulemaking establishing the definitional levels for characteristic wastes. These commenters indicated that the original establishment of these standards was, presumably, based upon consideration of health-based risks. Unless these considerations have changed, the LDR treatment standards should be to these levels only. If, however, the health-based standards are no longer adequate or are flawed in

some way, then the proper approach would be to rev the entire standard for characteristic wastes to be truly reflective of the levels it believes pose a hazard to human health and the environment.

One commenter (242) noted that in the final rule discussing characteristic wastes (45 FR 33066), a waste was considered to be hazardous at a certain characteristic level. Although EPA admits characteristic wastes may be hazardous below the characteristic level, further scientific study would be necessary to determine otherwise. No scientific support has been provided by the Agency in the ten years since promulgation of the final characteristic rule to indicate that these levels need to be changed.

Another commenter (098) stated that, by setting the BDAT standard below the characteristic threshold, treatment is required to levels below which wastes that are more hazardous can currently be disposed of in Subtitle D facilities. If threshold characteristic wastes clearly present a risk, EPA should propose new characteristic levels rather than set BDAT standards to force treatment to below the threshold characteristic level. Proposing new standards will provide the regulated community an opportunity to comment on the appropriate level needed to protect human health and the environment and will allow for more orderly implementation of this major change in the regulation of characteristic wastes. Changes in the regulation of characteristic wastes under BDAT standards are effective immediately, allowing little time to comply with the standards.

Agency Response

The Agency believes that, especially for toxic wastes, there are risks to human health and the environment at levels below the characteristic levels.

The levels for the EP (and TCLP) characteristics are levels at which wastes are clearly hazardous. (See 45 FR 33084 May 19, 1980; and 51 FR 21648 June 13, 1986). Threats to human health and the environment are not minimized for wastes above levels where treatment would result in substantially lower contaminant levels. There can clearly be further minimization of threats to human health and the environment, as required by RCRA, by treating these wastes below the characteristic levels. Accordingly, in addition to prescribing specified methods for certain characteristic wastes, the Agency is setting concentration-based treatment standards for EP toxic pesticide non-wastewaters at below the characteristic level. EPA retains its authority to set standards below characteristic levels for other wastes in future rulemakings. See section 7.1 of this document for a detailed discussion of the Agency's rationale.

Summary of Comments

U.S. Air Force (135-pp.12-13) acknowledged EPA's obligation to establish waste treatment levels which minimize the threat to human health and the environment, and suggested in following this mandate EPA should exercise its other statutory authorities as well as common sense. The commenter noted the following fundamental differences between the characteristic and listed waste codes. First, listed wastes are generally more hazardous than characteristic wastes and typically exhibit more than one hazardous property. Second, below the scientifically determined hazard levels, characteristic wastes are no longer considered to pose a known threat to human health and the environment. Third, EPA eventually must promulgate a numerical threshold value that is no longer considered a threat to human health and the environment.

The commenter added that once the Agency promulgates a characteristic hazard or a de minimis level, any waste which meets those levels should no longer be defined as hazardous. Such wastes should be managed as solid wastes, since managing nonhazardous wastes under RCRA Subtitle C would be a waste of resources. The commenter recommended that EPA modify the definition of hazardous wastes to exclude de minimis level or "below characteristic level" wastes from Subtitle C.

Agency Response

The Agency is in the process of developing a de minimis rule, which will propose to amend the definition of hazardous waste by establishing self-implementing concentration and risk-based exemption levels for listed waste. The effect of this rule, if finalized, will be that listed wastes that contain the constituents identified, and are below the exemption levels, will no longer be managed as hazardous waste, unless they are solid wastes that exhibit a characteristic. The Agency has not yet completed its evaluation of the relationship of de minimis levels to treatment standards promulgated under the land disposal restrictions. Therefore, the Agency cannot apply these levels under this rulemaking.

Summary of Comments

The American Foundrymen's Society (222-p.5) stated that the Agency's analysis for the health benefits of the proposed treatment standards for D006 and D008 does not warrant setting treatment levels lower than the existing characteristic level. The proposed treatment standards for lead and cadmium

essentially provide little or no added benefit to human health when compared to the existing characteristic levels.

Agency Response

EPA received data during the comment period asserting that it was not possible to meet the proposed treatment standards for D006 cadmium. However, these data further indicated that treaters can meet the characteristic level. Therefore, the Agency is promulgating the characteristic level as the treatment standard for D006 non-wastewaters and wastewaters. EPA also received data during the comment period indicating that treatment levels above and to below the characteristic level is achievable for D008 lead wastes. However, the Agency has determined that setting treatment standards for D008 wastes at the characteristic level better represents the overall achievability of treatment for these wastes and is promulgating treatment standards to that effect.

Summary of Comments

Several commenters offered similar comments on the practical utility of requiring stringent treatment standards for characteristic wastes and questioned whether the benefits of these requirements could be documented. American Chrome and Chemicals (105-p.1) and Air Force (135-p.13) stated that there is little doubt that with sufficient physical and chemical processing the leachability in a specific test, like the TCLP, of any of the toxic metals from a particular waste can be reduced to a very low level. However, the commenter doubts this is necessary to be protective of human health and the

essentially provide little or no added benefit to human health when compared to the existing characteristic levels.

Agency Response

EPA received data during the comment period asserting that it was not possible to meet the proposed treatment standards for D006 cadmium. However, these data further indicated that treaters can meet the characteristic level. Therefore, the Agency is promulgating the characteristic level as the treatment standard for D006 non-wastewaters and wastewaters. EPA also received data during the comment period indicating that treatment levels above and to below the characteristic level is achievable for D008 lead wastes. However, the Agency has determined that setting treatment standards for D008 wastes at the characteristic level better represents the overall achievability of treatment for these wastes and is promulgating treatment standards to that effect.

Summary of Comments

Several commenters offered similar comments on the practical utility of requiring stringent treatment standards for characteristic wastes and questioned whether the benefits of these requirements could be documented. American Chrome and Chemicals (105-p.1) and Air Force (135-p.13) stated that there is little doubt that with sufficient physical and chemical processing the leachability in a specific test, like the TCLP, of any of the toxic metals from a particular waste can be reduced to a very low level. However, the commenter doubts this is necessary to be protective of human health and the

environment. The commenters stated that EPA should use available data to evaluate whether the characteristic level minimizes risks to human health and the environment. These commenters stated that using the nation's resources to process waste simply because it is technically possible to do so is clearly not in the best interests of the country.

Tyler Pipe (131-p.2) stated that EPA's position that hazardous wastes should be treated to levels that minimize human health and environmental effects, to the extent that additional treatment provides no further risk reduction, is a laudable goal. However, in reality this goal cannot be achieved unless the hazardous constituents are completely removed from the waste. If any amount of hazardous constituent remains in a waste, it can always be argued that additional removal would reduce the risk further; the actual issue is how low the risk level must be before additional reductions no longer make any significant difference. The commenter stated that reductions of waste leachate concentrations to below the applicable characteristic thresholds go beyond the point at which additional treatment does not result in significant additional protection of human health and the environment.

Finally, Caterpillar (236-p.1) echoed the above comments by stating that wastes should be treated to remove the characteristic that makes them hazardous and not to an arbitrary level set simply because it may be technically achievable. The commenter stated that it was difficult to understand the rationale for allowing waste with an EP toxicity concentration of 4.9 mg/l chromium to be placed in a nonhazardous landfill when a waste with an EP toxicity of 5.0 mg/l must be treated to 0.094 mg/l prior to placement in a hazardous waste landfill.

Agency Response

The Agency believes that it is indeed important that required treatment provide benefits. The Agency plans to promulgate de minimis levels in a future rulemaking which will establish concentrations at which listed wastes no longer pose a threat and may therefore be removed from Subtitle C regulations. These de minimis levels would be lower than existing characteristic levels. For the characteristic wastes, however, the Agency believes that further minimization of threats to human health and the environment may be achieved since these are levels at which a waste is clearly hazardous. Thus, in addition to setting a specified technology for certain characteristic wastes, EPA is establishing concentration-based standards below the characteristic level for EP toxic pesticide non-wastewaters. The Agency believes that the prescribed concentration levels are necessary to minimize threats to the environment and human health from these wastes. Because the ability to treat these wastes is less matrix-dependent than for other wastestreams, the Agency believes that the prescribed levels can be consistently achieved through available technology. The Agency retains its authority to require further treatment for other characteristic wastes in future rulemakings.

Summary of Comments

Fertilizer Institute (092-p.15) and Synthetic Organic Chemical Manufacturers Association) (108-pp.7-8) stated that EPA's proposal is contrary to the Administrative Procedures Act. EPA cannot by way of preambular discussion dismantle and redefine the parameters of the RCRA program (i.e.,

essentially redefine the characteristic level). To restructure the regulatory program in this manner, EPA must initiate a rulemaking that articulates its rationale for abolishing the characteristic test as a measure for determining whether a waste is subject to RCRA Subtitle C. Moreover, EPA must fully explore the issues involved and provide an opportunity for public comment on those issues. If EPA now believes that wastes not currently classified as hazardous pose threats warranting Subtitle C regulation, it should directly revise the definition of hazardous waste instead of attempting an ad hoc remedy in the Third Third rulemaking.

Agency Response

The Agency reiterates that it is not changing the definition of hazardous waste in this rulemaking.

Summary of Comments

The American Petroleum Institute (168-p.64) and Unocal (233-p.3) disagreed with the Agency's statement that "in most cases, treatment below the characteristic level would clearly result in further minimization of threats to health and the environment." The latter assertion is unsupported and speculative and may be untrue in as many cases as it is true. Moreover, EPA bases that assertion on its view that the current EP toxicity characteristic does not always identify a waste that may pose a hazard. The commenter stated that if EPA believes that there are any omissions in the coverage of the EP toxicity rule, it should correct that problem by amending the toxicity characteristic (as EPA is currently in the process of doing). It does not

justify, however, expanding the scope of Section 3004(m()) to require additional treatment for wastes that are, by definition, no longer hazardous because they no longer meet any characteristic. .

Agency Response

The Agency plans to promulgate de minimis levels in a future rulemaking which will establish concentrations at which listed wastes no longer pose a threat and may therefore be removed from Subtitle C regulations. These de minimis levels would be lower than existing characteristic levels. For the characteristic wastes, however, the Agency believes that further minimization of threats to human health and the environment may be achieved since these are levels at which a waste is clearly hazardous.

7.10 Point of Generation Issues

Summary of Comments

Allied-Signal (267-pp.11-13) and Browning-Ferris (214-pp.10-12) stated that the proposal is flawed and unworkable because it depends upon a finding that a waste is "hazardous at the point of generation and is destined for land disposal." The concept of the "point of generation" has been used by the Agency in the past, but here it will take on new and dramatic significance. Generators have not been required to identify the point of generation for characteristic wastes, yet that determination will now have to be made throughout the waste treatment train and will have major practical impacts. The complexity and arbitrariness of determining a point of generation threatens to overwhelm implementation of the rule. Furthermore, the point of generation is simply not relevant for characteristic wastes. A pH 4 waste that has never been a characteristic waste has the identical potential environmental effects as a pH 4 waste that at one time had a pH of 2 or below.

Agency Response

EPA acknowledges that the proposed point of generation approach for determining whether all characteristic hazardous wastes are destined for land disposal would pose significant, complex implementation burdens and would disrupt regulated community operations. As a result of these concerns, EPA has balanced this approach with problems in integrating regulatory programs with rules to specifically address those problems. Under this approach, high TOC ignitable non-wastewaters, reactive cyanide wastes and reactive sulfide

wastes, and EP toxic pesticides are subject to the point of generation approach. The Agency took this action because it better serves the goals of the statute in the following ways:

- (1) The Agency may prohibit dilution of characteristic wastes not currently subject to other EPA regulatory programs (i.e., regulations promulgated pursuant to the CWA or SDWA) (although EPA has independent authority to prevent dilution of hazardous wastes even if prohibitions apply at the point of disposal).
- (2) The Agency may specify a method of treatment as the treatment standard, which must be used upon the waste as generated. This authority is granted in Section 3004(m). If the waste may be diluted (i.e., the determination of LDR applicability made at the point of disposal) so that it no longer exhibits a characteristic, the ability to specify a method would be without meaning for these wastes.

For other characteristic wastes, EPA has determined that dilution is permissible, in effect adopting a point of disposal approach.

EPA is retaining the proposed point of generation approach for toxic non-wastewaters and toxic wastewaters managed to ensure that these wastes are treated effectively. Without this approach, toxic wastes could be diluted to below the characteristic levels in lieu of legitimate treatment.

Summary of Comments

The Hazardous Waste Treatment Council (172-p.28) stated that to ensure the integrity of the proposed approach and proper enforceability, the Agency should reemphasize that its point of generation policy fully applies to characteristic wastes. The need for this policy is even greater with characteristic wastes, which are more amenable to dilution and subsequent unauthorized exclusion from RCRA, than listed wastes.

Agency Response

As described above, EPA has limited the application of the point of generation approach to certain toxic hazardous wastes. EPA believes that the potential immediate disruption to the regulated community from a full point of generation approach, which applies to listed wastes, would be significant. EPA believes that this approach is essential for harmonizing Section 3004(m) standards with regulatory programs under the Clean Water Act and the Safe Drinking Water Act, as required by RCRA Section 1006(b).

Summary of Comments

Amoco (240-p.6) stated that the Agency discussed the point of generation approach in the preamble but did not define the term "point of generation." The commenter assumed that the Agency is not attempting to amend the definition of solid waste and asked the Agency to clarify this issue.

Agency Response

The "point of generation" is defined in prior rulemakings. Under the point of generation approach, certain toxic wastes become subject to the LDRs at the "point of generation," that is when they first become subject to regulation as a hazardous waste. For example, the point at which a pesticide that fails the EP toxicity test first becomes a waste may be its point of generation. The hazardous waste regulations of Part 261, rather than the land disposal restrictions, determine the point of generation. (See 40 CFR 261.3(b).) Thus, as assumed by the commenter, the Agency is not amending the definition of solid waste by adopting the point of generation approach for selected characteristic wastes.

7.11 Regulatory Impact and Implementation Issues

Summary of Comment

The Association of State and Territorial Solid Waste Management Officials (157-p.2,6) was concerned about several impacts of treatment standards below characteristic levels.

- Burden on Subtitle C System. After being treated, the commenter assumed restricted waste will be sent to Subtitle D sites with required certifications. Thus, Subtitle C implementing staff (both public regulators and the regulated community) will face an increased universe of facilities receiving restricted wastes. Additional staffing and training will be required to address this newly regulated universe and to review waste analysis plans and compliance with the dilution and storage prohibitions.
- Impact on Subtitle D Facilities. Subtitle D facilities have not been a part of the RCRA hazardous wastes "cradle to grave" system and have no Federal requirements for waste monitoring, manifesting, or reporting. Subtitle D operators will be reluctant to accept the responsibilities that come with managing formerly characteristic hazardous wastes. They may reject waste treated far below the characteristic levels because of the administrative burden and to avoid the perception of being a "hazardous" waste facility. Some Subtitle D facilities may even accept wastes illegally unless their requirements are clearly specified.
- Surveillance and Tracking. Simple testing of unknown wastes will not be sufficient to determine whether a waste is outside Subtitle C.

Investigations of wastes' origins will be necessary. It will be difficult to distinguish between wastes generated with concentrations slightly below the characteristic level and those that were originally hazardous but were inadequately treated to the same concentration level, which may be above the treatment standard.

ASTSWMO also urged EPA to acknowledge the increased burden that the proposed regulations will place on States and to establish reasonable enforcement priorities and provide training, guidance, and resources to help the States implement the program.

Agency Response

Some of the commenter's concerns about the implementation burden are caused by an apparent misunderstanding of how the land disposal restrictions will apply to formerly hazardous waste and Subtitle D facilities. Other concerns have been addressed by changes in the proposed rule. For example, the implementation burden will not be as substantial as envisioned by the commenter because EPA has established treatment levels that are below characteristic levels only for EP toxic pesticide non-wastewaters. EPA also notes that dilution is permissible for non-toxic wastes and wastes regulated under the CWA and SDWA.

- Burden on Subtitle C System. Under the final rulemaking, characteristic hazardous wastes that are legitimately treated to below characteristic levels are not subject to the full hazardous

waste manifesting or LDR tracking requirements if shipped to Subtitle D facilities.

- Impact on Subtitle D Facilities. The Agency has decided that tracking documents for prohibited characteristic wastes that no longer exhibit a characteristic should not go to Subtitle D facilities, but is not deciding that notifications and certifications should not be prepared for such wastes. The Agency's concern is where those notifications and certifications are sent. EPA believes, and is requiring, that the notifications and requirements be sent to the appropriate EPA Regional Administrator or his delegated representative, or to a state authorized to implement the land disposal restrictions. The person preparing the notification and certification must also include the identity and address of the facility where the treated waste is sent. For a more complete discussion of these issues and requirements, please see Sections III.E and F of the final rule.

Summary of Comments

Ford (180-pp.2-3) and BP Chemical (216-p.22) stated that the proposed rule would cause confusion in the regulated community and severe implementation problems. They also stated that the preamble and proposed regulations are largely silent on how EPA expects the wastes treated to below the characteristic level to be handled.

- Can non-RCRA facilities treat wastes that are no longer considered hazardous but do not meet the treatment standard and require additional

treatment? Also, must these wastes be manifested? If so, as a hazardous or nonhazardous waste? If not, how will compliance with Part 268 requirements be tracked? Would notification per Section 268.7 be required?

- For wastes that meet the treatment standard, the commenter assumed that a manifest would not be required and that land disposal could occur at a non-Subtitle C facility. The commenter, however, was unclear about how the certification provisions of Section 268.7 must be met. Does EPA intend that information in the certification required by Sections 268.7(a)(2) or (b)(5) be sent to the nonhazardous landfill or retained on-site?

The commenters urged the Agency not to promulgate a final rule requiring treatment to below the characteristic level until all implementation issues are resolved.

Agency Response

EPA agrees with the commenters that applying the proposed point of generation approach to all characteristic wastes would cause considerable confusion in the regulated community and significant implementation problems. EPA has modified its proposal, and has provided a complete discussion of the revised tracking system in Section III.F of the preamble, and has addressed several specific implementation situations in Section III.E of the preamble.

Summary of Comments

Several commenters (ASARCO (269-p.35), American Mining Congress (201-p.19), Union Carbide (190-p.3), GNB (202-p.8), Cyprus Copper (121-p.3), and Gulf Coast Waste Disposal Authority (151-p.7)) stated that because EPA's proposed approach would impose different regulatory requirements on identical wastes, it would cause serious practical problems. The Agency would have to characterize thousands of individual wastestreams at manufacturing facilities to determine whether they all exhibit a hazardous characteristic. Furthermore, EPA's proposal would require the Agency and the regulated community to somehow distinguish between solid wastes that were formerly hazardous wastes and solid wastes that were never hazardous wastes.

The commenters claimed that determining whether a waste is a nonhazardous waste or is an incompletely treated hazardous waste could be impossible. For example, they noted, there is no mechanism in place that will allow Subtitle D disposal facilities to know whether the nonhazardous wastes they receive were at one time characteristic hazardous wastes. In addition, a generator may not even be able to determine whether a waste was formerly a characteristic hazardous waste. For example, a generator may not be able to determine whether the chromium in a nonhazardous waste was present due to the unintentional dilution of a characteristic hazardous waste or was caused by accumulation of the metal from a combination of nonhazardous wastes containing the metal (e.g., solids precipitating from a wastewater). The commenters also stated that the treatment standards proposed by EPA are unenforceable because land disposal facility operators would have to rely solely upon the generator identifying a waste as hazardous by characteristic.

The commenters expressed concern that a Subtitle D facility may unknowingly accept a waste for disposal that, although nonhazardous at the time it is received, was previously a characteristic hazardous waste and has not been treated to BDAT levels. The disposal facility would be unable to tell the difference between the origins of the identical wastes, making it virtually impossible for the facility to carry out its legal obligations.

These commenters stated that remedying this problem would require a notification and tracking system that would effectively impose Subtitle C-type requirements on Subtitle D waste generators and disposal facilities. Aside from the administrative difficulties inherent in this approach, this requirement could unfairly subject persons possessing wastes that had always been below characteristic levels to unwarranted regulatory scrutiny. The commenters stated that this scheme would be contrary to the two-tiered system established by Congress for regulation of hazardous and nonhazardous waste.

Agency Response

As previously indicated, the Agency has decided that tracking documents for prohibited characteristic wastes that no longer exhibit a characteristic should not go to Subtitle D facilities, but is not deciding that notifications and certifications should not be prepared for such wastes. The Agency's concern is where those notifications and certifications are sent. EPA believes, and is requiring, that the notifications and requirements be sent to the appropriate EPA Regional Administrator or his delegated representative, or to a state authorized to implement the land disposal restrictions. The person preparing the notification and certification must also include the identity and address of the facility where the treated waste is sent. For a more

complete discussion of these issues and requirements, please see Sections III.E and F of the final rule.

Summary of Comments

The Synthetic Organic Chemical Manufacturers Association (108-p.12) indicated that EPA is creating a regulatory limbo for "prohibited nonhazardous wastes." For example, EPA asserted in the preamble that "prohibited nonhazardous wastes" are no longer hazardous waste and need not be managed in Subtitle C units. Yet, the existing Part 268 regulations require that all shipments of prohibited wastes that do not yet meet treatment standards be accompanied by a manifest. The manifest system requires that the generator, transporter and treatment, storage and disposal facility have RCRA I.D. numbers.

- Yet, the facility generating a prohibited, nonhazardous waste may not necessarily be a hazardous waste generator and may not have a RCRA I.D. number.
- Similarly, the waste being transported is a nonhazardous waste and therefore does not need to be transported by a carrier with an EPA I.D. number.
- Finally, the facility receiving and managing this waste is not receiving a hazardous waste and thus is not required to be a RCRA TSD facility.

Therefore, the current regulations would require the prohibited nonhazardous waste to be accompanied by a manifest that the generator, the transporter, and

the treatment, storage and disposal facility are not prepared or able to complete.

Agency Response

Except for EP toxic pesticide non-wastewaters, the Agency is promulgating concentration-based treatment standards equal to or greater than the characteristic levels; therefore, the "prohibited nonhazardous" wastes that would have occurred under the proposed rule will occur only for this one treatability group of cancelled pesticides. The Agency does not believe that these requirements will result in significant disruptions to the regulated community. Finally, the Agency has addressed the implementation problems mentioned by the preamble discussion. Specifically, the Agency has decided that tracking documents for prohibited characteristic wastes that no longer exhibit a characteristic should not go to Subtitle D facilities, but is not deciding that notifications and certifications should not be prepared for such wastes. The Agency's concern is where those notifications and certifications are sent. EPA believes, and is requiring, that the notifications and requirements be sent to the appropriate EPA Regional Administrator or his delegated representative, or to a state authorized to implement the land disposal restrictions. The person preparing the notification and certification must also include the identity and address of the facility where the treated waste is sent. For a more complete discussion of these issues and requirements, please see Sections III.E and F of the final rule.

Summary of Comments

The Fertilizer Institute (092-p.13) stated that EPA's proposal will cause chaos in the implementation of the RCRA Subtitle C program. Wastes and the units in which they are managed will suddenly be subject to a Subtitle C-based requirements while they are not subject to any other hazardous waste management requirements. Neutralizing corrosive wastes in a step-wise process in stages in different units might cause units not previously considered to be handling hazardous wastes (and therefore not subject to Subtitle C regulation) to now be handling a waste subject to Subtitle C. This commenter asserted that EPA cannot impose Subtitle C requirements on units that do not manage characteristic hazardous waste or on the non-characteristic waste itself.

Agency Response

EPA has addressed the concerns of this commenter by changes from the proposed to the final rule. Corrosive wastes can be legitimately diluted to below the characteristic level and thereby avoid the land disposal restrictions. Thus, the final rule does not change the regulation of neutralization units used to treat corrosive wastes to non-characteristic levels. Please refer to the previous comment response.

Summary of Comments

Union Carbide (190-p.2) stated that setting standards below the characteristic level would make it impossible in certain situations to properly operate a biological wastewater treatment unit and very difficult to

meet NPDES permit limits established under the Clean Water Act. The commenter provided three examples of its facilities wherein the requirement to treat influents to a pH of between 6 and 9 would severely limit the ability of these facilities to operate effectively without an adverse impact on the protection of the environment.

Agency Response

EPA has modified the proposed rules for all corrosive characteristic hazardous wastes. EPA has withdrawn its proposal to require corrosive wastes to be treated to a pH of between 6 and 9. Under the final rules, dilution is an acceptable method of treatment for such wastes. When corrosive wastes are treated or diluted so that they no longer exhibit the characteristic, the wastes are no longer subject to the Subtitle C requirements.

Summary of Comments

ASARCO (269-p.35) stated that EPA has not explained how administrative difficulties will be resolved that are created when characteristic wastes are regulated to below characteristic levels and State solid and hazardous waste regulations are more stringent than federal regulations. The commenter indicated that, in the absence of a workable approach to these serious administrative problems, EPA must reconsider its proposal. If it insists on this approach, the Agency should provide an opportunity for public comment on how EPA will deal with the administrative problems before the rule is finalized.

Agency Response

The Agency has decided that tracking documents for prohibited characteristic wastes that no longer exhibit a characteristic should not go to Subtitle D facilities, but is not deciding that notifications and certifications should not be prepared for such wastes. The Agency's concern is where those notifications and certifications are sent. EPA believes, and is requiring, that the notifications and requirements be sent to the appropriate EPA Regional Administrator or his delegated representative, or to a state authorized to implement the land disposal restrictions. The person preparing the notification and certification must also include the identity and address of the facility where the treated waste is sent. For a more complete discussion of these issues and requirements, please see Sections III.E and F of the final rule.

Summary of Comments

The University of California (182-p.4) stated that the administrative and financial costs of requiring generators to meet treatment standards below characteristic levels far outweigh the environmental benefit of such treatment.

Agency Response

The Agency reiterates its belief that further minimization of risks to human health and the environment may be achieved by requiring treatment below the characteristic levels. The Agency has set concentration-based standards

at below the characteristic level for EP toxic pesticides, and specified methods for certain other characteristic wastes.

Summary of Comments

The Institute of Chemical Waste Management (164-p.3), without explanation, urged the Agency to set treatment standards based on BDAT, not at the characteristic level.

Agency Response

While treatment standards are based on the performance of the technologies as proposed, the individual standards have been revised to reflect data that the wastestreams have wide variability in their ability to meet the standards. Thus, the final treatment standards expressed as concentration levels are set at or above characteristic levels for all characteristic wastes except EP toxic pesticide non-wastewaters, or as specified treatment technologies.

Summary of Comments

American Petroleum Institute (168-p.69) and Chevron (119-p.1) stated that, assuming EPA has the authority to require treatment to below characteristic levels, these standards would create serious economic, practical, and technical difficulties for the affected industries and for EPA enforcement. Prior to this notice, treatment of characteristic wastes below the characteristic level was not required or even suggested. Thus, industry

has not had the opportunity to develop detailed information on the potential problems associated with this approach.

Agency Response

As noted in the responses to the earlier comments, EPA recognizes that there are difficulties associated with the proposed land disposal restrictions for characteristic wastes. The Agency has attempted to alleviate these problems to the extent possible in the final rule, and to clarify implementation of the regulations. In addition, EPA is granting a 90-day extension to provide the regulated community with time to understand and comply with any new requirements.

Summary of Comments

Department of Energy (198-p.18) recommended that EPA set characteristic levels as the treatment standards and allow generators to determine, on a case-by-case basis, the most appropriate way to render characteristic wastes nonhazardous. To implement this approach, the commenter suggested that EPA develop guidance within the preamble of the final rule describing the most appropriate technology for specific types of characteristic wastes.

Agency Response

EPA has not adopted the approach recommended by the commenter for all characteristic wastes. As discussed in the analysis of comments on the treatment standards for specific characteristic wastes, EPA believes that

certain wastes should be subject to required methods of treatment rather than concentration-based treatment standards. Nevertheless, EPA has established treatment standards for many characteristic wastes expressed as concentration levels at or above the characteristic level. These standards are based on the performance of the technologies as proposed, but are revised to reflect data that the wastestreams have wide variability in their ability to meet the standards. In the case of EP toxic pesticide non-wastewaters, the Agency, however has established concentration-based treatment standards at below the characteristic level. As stated in Section 7.1 and in other responses, the Agency believes that these treatment standards are achievable on a consistent basis and not disruptive of the regulated community.

Where EPA has expressed standards as concentration levels, the preamble provides some guidance to the regulated community about the appropriate methods of treatment.

7.12 Interim Standards for Characteristic Wastes

Summary of Comments

The following commenters stated that, if EPA has authority over wastes beyond the characteristic levels to where the toxicity of the waste is substantially diminished, then an interim standard at the characteristic level would be appropriate: Association of State and Territorial Solid Waste Management Officials (157-p.1), Petroleum Marketers Association of America (205-p.3), Specialty Steel Industry of the U.S. (276-pp.2-3), Steel Manufacturers Association (274-pp.2-3), Ford (180-pp.2-3), du Pont (189-p.2CL) Horsehead Resource Development (199-p.3), BP Chemical (216-p.22), Exide (117-p.2), IRECO (126-p.4), and Merck (242-p.2). These commenters recommended that the Agency adopt treatment standards at the characteristic level as an interim approach pending full exploration of the impact of setting standards below the characteristic level and the development of mitigation measures, if appropriate.

These commenters suggested that the Agency does not have sufficient information to promulgate treatment standards below characteristic levels. An interim standard at the characteristic level would allow the Agency time to obtain sufficient data to determine whether more stringent treatment standards are necessary or achievable for all characteristic hazardous wastes. In addition, an interim standard would serve to conserve limited resources and prevent the expenditure of capital for treatment technologies that may not be necessary.

Agency Response

As discussed in the response to comments in Section 7.1, EPA believes that it has the regulatory authority necessary to require treatment below characteristic levels and has done so, for example, in the case of EP toxic pesticide non-wastewaters. EPA is also specifying treatment methods for certain other characteristic wastes that will lead to treatment to below the characteristic level.

Summary of Comments

SCM Chemicals (196-pp.3-4) urged the Agency not to promulgate an interim standard subject to subsequent revision once EPA can fully address any implementation problems. The commenter stated that the Agency should promulgate a final rule that does not go below the characteristic level. The commenter stated that EPA should not attempt to reconfigure the statutory and regulatory scheme of RCRA by "re-interpreting" Section 3004(m) to regulate formerly characteristic wastes, thereby threatening the existing Subtitle C regulatory program. To satisfy the current regulations, the regulated community has spent many millions of dollars on the design and installation of facilities (e.g., elementary neutralization units or other components of wastewater treatment systems) that treat characteristic wastes so that they no longer exhibit a hazardous characteristic of such waste.

Agency Response

The Agency has not adopted an interim approach for the characteristic treatment standards and as previously stated, is setting concentration-based treatment standards below, at or above the characteristic levels. The other concerns expressed by the commenter are alleviated by the Agency's integration of the LDR program with the regulatory programs under the Clean Water Act and the Safe Drinking Water Act. This integration recognizes the substantial investments already made in wastewater treatment systems and other facilities to treat characteristic wastes to below the characteristic levels in compliance with existing regulatory programs.

Summary of Comments

The Environmental Defense Fund (125-pp.5-6) and (L280-pp.1-3) opposed establishing interim treatment standards at the characteristic levels because the approach is contrary to statutory requirements and insufficient to protect human health and the environment, even for a limited time period. EDF was also concerned that interim regulations would become permanent as a result of inertia.

The Environmental Defense Fund stated that the lack of treatment data concerning all the wastes covered by the four hazardous waste characteristics is not an adequate basis for adopting an "interim" policy. Treatment data for the entire universe of hazardous waste is not a statutory or policy prerequisite for establishing BDAT standards. The Agency has procedural mechanisms for establishing alternative or equivalent treatment standards where an established BDAT standard may be inappropriate for particular wastes.

Summary of Comments

The Hazardous Waste Treatment Council (172-pp.26-27,29) urged the Agency not to set an interim standard at the characteristic level. According to the commenter, there are no wastestreams that cannot be treated to the EP toxicity or other characteristic levels and, with one exception discussed below, there are very few metal-bearing wastestreams that cannot be treated to levels comparable to those previously established for listed wastes. The one exception is a listed metal-bearing waste (or EP toxic metal) that is also characteristically hazardous due to corrosivity. The required treatment for the corrosivity characteristic may compromise and even prevent treatment of the metal-bearing constituents to the BDAT levels, particularly for non-wastewater forms of listed or characteristic metal-bearing wastes.

Agency Response

The Agency is not setting interim treatment standards for the characteristic wastes. EPA is setting is promulgating concentration-based treatment standards below or at the characteristic level (except for selenium). The Agency also notes that methods are specified for certain wastes, which are likely to result in treatment below the characteristic levels.

7.13 Overlap of Standards for Multiple Characteristic and/or Listed Wastes

Summary of Comments

Environmental Defense Fund (125-pp.7-9) stated that the proposed exception (at 54 FR 48491) that would allow treatment standards for a listed waste to be applied in lieu of the relevant characteristic standards in cases of overlap is contrary to the statutory policy that requires treatment to BDAT standards. The commenter argued that EPA should require all relevant treatment standards to be met under all circumstances to avoid waste code "shopping." The commenter argued that the Agency's rationale for the proposed exception (i.e., "the more specific treatment standard takes precedence") is inappropriate for the overlap between listed and characteristic wastes. Even though this principle was adopted for California list wastes, the commenter contended that EPA recognized the limited role of these less stringent California waste prohibitions. The commenter stated it would be simpler for generators to meet the most stringent treatment standards applicable than to determine if a waste code specific BDAT standard addresses all characteristic constituents. Consequently, EDF suggested that EPA amend proposed RCRA Sections 261.11 and 268.7 to require generators to identify all relevant waste codes and treatment standards, and record and transmit this information to downstream waste handlers.

Agency Response

The Agency is requiring that listed wastes with one or more characteristic waste codes be treated to meet the treatment standard for each

waste code, with one exception: if the relevant constituents or narrative characteristics are specifically addressed in the treatment standard for listed waste, then the standard for the listed waste operates in lieu of the standard for the relevant characteristic.

These requirements are consistent with the general principle articulated in previous LDR rulemakings, that the more specific LDR treatment standard takes precedence. If a constituent is addressed under the LDR treatment standards for listed wastes, that is the appropriate standard for that constituent because it is the more specific standard and best reflects the Agency's determination of what the best demonstrated available technology can achieve.

Summary of Comments

Several commenters, including Dow (179-pp.7-8), Waste Management Inc. (159-pp.71-73), and Ford (180-p.5) noted that EPA's proposed regulatory scheme for listed wastes that also exhibit a hazardous characteristic is a major shift within RCRA and contrary to the Agency's current procedures for characterizing a waste as either listed or hazardous. The commenters supported a dual approach for identifying wastes, but asserted that this approach would require amending 40 CFR 262.11 and 261.20-24 to require dual waste characterization at the point of generation.

Agency Response

As stated above, the rule requires that treatment standards for listed wastes must be met in lieu of standards for characteristic waste if the

relevant constituents or narrative characteristics are specifically addressed in the treatment standard for the listed waste. At the same time, when a listed waste exhibits a characteristic that is not addressed by the listed waste's treatment standard, EPA believes it is necessary for that characteristic to be treated to meet the characteristic standard. As suggested by the commenter, EPA is revising 40 CFR 262.11 and 261.20-24 to reflect these requirements.

Summary of Comments

Department of Energy (198-pp.19-20) agreed that wastes should be treated to address both listed and characteristic hazardous waste codes, but requested that the generator have the option to choose the technology(ies) that would address the treatment standard for the listed waste, as long as the technology would also render the waste non-characteristic. For wastes with several characteristics, the commenter requested that the generator should also be able to choose the treatment technology(ies) that renders the waste nonhazardous for all characteristics. This flexibility allows the generator to choose the best technology(ies) for environmental protection while minimizing both the number of technologies used and the monitoring costs.

Agency Response

The Agency agrees with the commenter that a waste generator should be able to select the technology(ies) that would address the treatment standard and notes, when the LDR treatment standards are set as concentration levels, generators always have this option. As stated in this and in previous

rulemakings, however, the Agency must sometimes establish a treatment standard as a specified technology based on inadequate data or problems with analytical methods. Although this limits the choice of which technologies a facility may use to comply with the LDRs, the facility has the option of applying for an equivalent treatment method petition that allows the use of other technologies.

Summary of Comments

Horsehead Resource (199-pp.4-6) and The American Mining Congress (201-pp.34-36) asserted that EPA's proposed approach to overlapping listed and characteristic wastes is unnecessary, since the LDR standards for listed wastes, which take into account whether the waste is also EP toxic, meet the mandate of RCRA Section 3004(m). Both commenters believed that this additional effort would not increase protection of human health and the environment. HRD asserted that the proposed rule can create absurd results, as shown in the treatment standards for high- and low-zinc K061 waste, which may differ by only a tenth of a percent in zinc content, but must meet LDR standards for chromium that differ by a factor greater than 50. AMC stated that EPA's proposal would alter and expand generators' responsibilities for waste testing in a way not envisioned under the statute.

Agency Response

The Agency believes that some situations may exist where treated listed wastes may exhibit a characteristic, and land disposal of such a waste would violate the land disposal restrictions. Generators are responsible for

conducting waste analysis at frequencies specified in their waste analysis plan apart from the requirements of the LDRs and, therefore, should know what characteristics, if any, a wastestream exhibits. As for the discussion about the 15 percent high zinc vs. low zinc cutoff with K061 wastes, the Agency based this concentration on treatability data submitted during the First Third rulemaking, and does not agree that this level is arbitrary. The Agency does not see the relevance, however, of this issue to the issue at hand.

Summary of Comments

Browning-Ferris Industries (214-pp.36-39) and Allied-Signal (267-pp.58-59) opposed the overlap of regulatory standards for listed and characteristic wastes, asserting that a listed waste should only require proper BDAT treatment. According to both commenters, it is of no regulatory concern if the BDAT treatment for the listed waste is inadequate for a characteristic constituent, as long as the treatment residue is not itself characteristically hazardous for that constituent. Both commenters thought that a characteristically hazardous treatment residue should be treated for that constituent, although a residue simply in excess of its constituent's standard should require no further treatment, but may be disposed of in a RCRA minimum technology unit.

The commenters thought the Agency's proposed requirement for overlap would force EPA to reexamine every BDAT treatment required for each combination of overlapping standards. BFI added that EPA should carefully evaluate data to avoid further waste code mismatching problems and possible confusion created by the proposed approach. The commenter also stated that 40 CFR 262.11 would have to be revised to reflect the proposed requirement.

Agency Response

The Agency reiterates that the generator must notify subsequent handlers of all waste codes applicable to a waste, and that the treatment standards for the constituents in the listed waste must be met, and subsequent treatment must occur prior to land disposal if the waste still exhibits a characteristic. The Agency notes that the treatment requirements imposed on a characteristic that is not reflected in the listing is not treatment for treatment's sake. Instead, this treatment is because the waste legally exhibits two waste codes, each of which must be treated to meet the appropriate treatment standards before land disposal may occur.

Summary of Comments

U.S. Ecology (226-pp.1-2) supported EPA's position that treatment standards set for constituents of concern for a listed waste take precedence over those standards set for the same characteristic's constituent. The commenter further recommended that if EPA has a listed waste constituent of concern on "reserved" status, then EPA should also reserve the applicable treatment standard. Since the Agency could not determine a treatment standard for the reserved constituents, the commenter contended it is unreasonable to require industry to meet a treatment standard. Consequently, the commenter argued that each derived-from waste constituent should be given reserve status until EPA determines valid treatment methods and standards.

Agency Response

EPA has made clear that derived-from wastes carry all of the waste codes of the originating waste. This principle has been argued in previous rulemakings, and it is not appropriate to discuss all of the reasons for this decision here. Because a derived-from waste is legally a restricted RCRA hazardous waste, EPA must apply the LDRs before the derived-from waste can be land disposed. The Agency also points out that some derived-from wastes may already meet the LDR treatment standards after treatment; in other cases, treatment may produce a smaller, more concentrated volume of wastes that can be more easily treated, or may exhibit a characteristic even if the treatment standard for the listed waste is met.

Summary of Comments

Gibraltar (264-p.2) believed that overlapping standards for listed and characteristic wastes will be difficult to implement since they require generators to test listed wastes for RCRA characteristics and appropriately treat both the listed and applicable characteristic wastes. The proposed approach would also require generators to test treatment residues for RCRA characteristics, with possible treatment of the residue. The commenter believed this requirement places additional burdens on generators, who may have to test their residues for characteristics not present in the untreated wastestream.

Agency Response

The Agency believes that extensive additional testing will not be required of generators, and reiterates that generators may continue to rely on knowledge of the waste. If, however, the generator is also the treater, such treatment, storage, and disposal facilities are already required to test wastes in accordance with their waste analysis plan, and will continue to be required to do so. The Agency believes that TSDFs are responsible for ensuring that wastes exhibiting a characteristic are not land disposed, even if the waste is a listed waste that meets its treatment standards.

Summary of Comments

Waste Management, Inc. (159-pp.71-73) doubted whether nationwide laboratory capacity exists to characterize all listed wastes under the proposed approach before promulgation of the Third Third rulemaking. Thus, the commenter suggested that EPA should assess laboratory capacity and wait until the expanded toxicity characteristic replaces the EP toxicity test before promulgating the new interpretation.

Agency Response

The Agency notes that the toxicity characteristic was promulgated in March 1990 and will be effective in September 1990, while the Third Third rule will be effective in May 1990; therefore, there is not a great difference in the effective dates of the two rules. The Agency further notes that as part

of promulgating the TC rule, the Agency found adequate laboratory capacity available.

Summary of Comments

Amoco (240-p.60) opposed requiring listed hazardous wastes that also exhibit a hazardous characteristic to comply with both treatment standards, unless the standards for the listed waste specifically address that characteristic. The commenter criticized this proposal as unnecessary and difficult to implement. For example, would the deadline for compliance be that for the listed waste standard or characteristic waste standard? Would concentration standards for specific volatile components of a listed waste be considered to specifically address the characteristic of ignitability? The commenter suggested that EPA withdraw the proposal in light of these and other issues.

Agency Response

EPA is adopting its proposed approach. If a listed waste exhibits one or more characteristics, the waste must be treated to meet the treatment standard for each characteristic, with one exception. Under the exception, if the relevant constituent or narrative characteristics are specifically addressed in the treatment standard for the listed waste, then the standard for the listed waste operates in lieu of the standard for the relevant characteristics.

EPA does not anticipate difficulties in implementing this requirement. Specifically, wastes subject to more than one treatment standard must be

managed in accordance with each standard only after the effective date of the standard. The Agency notes that this same approach has been used with overlapping standards for the California list wastes and waste-code specific treatment standards for the scheduled wastes.

In response to the commenter's second question, the Agency expects that if the treatment standards for the volatile constituents in listed wastes are met, the waste would no longer exhibit the characteristic of ignitability. If this was not the case, however, and the waste did exhibit the characteristic, the waste would have to meet the appropriate characteristic treatment standard.

Summary of Comments

The University of California (182-p.4) suggested that if a waste, when generated, exhibited more than one hazardous characteristic is treated by a required treatment method and no longer exhibits any of the original characteristics, the waste should not be subject to further treatment standards.

Agency Response

The Agency disagrees with the commenter. If, for example, after applying a required method of treatment, a waste exhibits none of the original characteristics but does exhibit a new characteristic, the waste would then have to meet the treatment standard for the new characteristic. Treatment of the new characteristic is necessary to ensure that the statutory prohibition against disposal of characteristic hazardous wastes is not violated.

Summary of Comments

Vulcan Chemicals (128-p.2,3) stated that when a characteristic waste is also a listed hazardous waste, EPA should require treatment of the listed hazardous constituent, even if it lowers the characteristic below characteristic levels. If that treatment makes the waste no longer exhibit a characteristic, the waste should not be subject to the characteristic waste treatment standard.

Vulcan also argued that once the waste no longer exhibits a characteristic and the listed hazardous constituent is at or below the concentration-based standard (apparently the treatment standard for the listed waste), the waste should not be considered hazardous and should be suitable for land disposal.

Agency Response

The Agency agrees with the commenter's first point, that if a listed waste that also exhibits a characteristic is treated to meet the treatment standard for the listed waste and the waste no longer exhibits a characteristic, the waste is not subject to the characteristic treatment standard. The Agency emphasizes, however, that listed waste must always be disposed of in a Subtitle C facility even if the treatment standard for the waste is met.

Summary of Comments

The Hazardous Waste Treatment Council (172-p.26,29,134) agreed with EPA that the more specific treatment standard should take precedence when the standards for a listed wastes that also exhibit a characteristic are overlapping. The commenter also stated that the Agency must specifically codify within the regulations a requirement to prohibit improper coding of hazardous wastes and stipulate that when a waste meets both the listed and characteristic waste criteria, it must carry the codes for both wastes. Unless this requirement is made clear and explicit, the commenter argued, the incentive to re-code a listed waste as a characteristic waste will increase in order to avoid Subtitle C residue management requirements.

The commenter also observed that generators are likely to change waste codes and ship their wastes as characteristic rather than listed to avoid minimum technology requirements. The commenter suggested that the Agency establish explicit requirements for and notify generators that such actions are illegal and violators are subject to prosecution. The commenter asserted that leaving this area of regulation ambiguous would encourage illegal changing of waste codes and greatly compromise the Agency's enforcement power.

The Department of Energy (260-p.1) also argued that requiring treatment to levels below the characteristic levels will create a vast potential for misclassification of listed wastes.

Agency Response

EPA is amending 40 CFR 262.11 (b) and (c), which previously set out an either/or scheme whereby a generator determines if the waste is either listed

or exhibits a characteristic, and does not need to determine if the waste exhibits a characteristic if it is listed. As revised, for purposes of compliance with Part 268, generators must determine whether listed wastes also exhibit characteristics, and subsequent handlers will need to know all applicable waste codes. The Agency recognizes the incentive to misclassify listed wastes as characteristic wastes, and believes this incentive has always existed since characteristic wastes may be disposed of in Subtitle D facilities once they have been treated so that they no longer exhibit the characteristic. The Agency believes that the requirement that all relevant waste codes must be provided will enhance the ability to enforce the accurate labeling of hazardous wastes.

7.14 Regulatory Priorities and "Hammer" Issues

Summary of Comments

The following commenters stated that Congress has provided "hammer" dates to force EPA to complete rulemaking on a timely basis: BP America (098-p.5), Chemical Manufacturers Association (L007-p.7), Rohm & Haas (194-p.29), SCM Chemicals (196-p.3), BP Chemical (216-p.3), OxyChem (138-p.3), and National Paint & Coatings Association (158-p.1). Failure by EPA to act was supposed to send severe repercussions throughout the regulated community. Based upon the Agency's proposal, however, if the "hammer" were to fall on characteristic wastes, the regulated community would find this more attractive than meeting the treatment standards that EPA plans to impose.

Assuming, as EPA does, that the "hard-hammer" applies to characteristic waste, EPA's failure to finalize the proposed standards for characteristic wastes would mean that "such hazardous waste shall be prohibited from land disposal." (Section 3004(g)(6)(C)). If waste is nonhazardous when placed on or in the ground, such placement would be lawful. In contrast, if EPA finalizes the treatment standards as proposed, the same nonhazardous waste could not be lawfully placed on or in the ground unless it is further treated to meet the lower BDAT standards. The hard-hammer would be a way of avoiding the more stringent treatment standards. Thus, EPA's approach contradicts the logic of the HSWA land ban scheme.

Agency Response

The Agency notes that the commenter's concerns are largely alleviated by the characteristic treatment standards in the final rule, which are either specified as methods, or concentrations below, equal to or, in one case, greater than the characteristic level. The Agency would further like to point out that if the hard hammer fell on the characteristic wastes, the regulated community would not be eligible for variances.

Summary of Comments

BP America (098-p.5) and IRECO (126-p.4) stated that Congress constructed the Hazardous and Solid Waste Amendments to force restrictions on the most hazardous wastes prior to regulating less hazardous wastes. Industry has consistently argued that the hammers were not supposed to apply to characteristic wastes. Nevertheless, EPA has included the characteristic wastes within the Third Third and has imposed treatment standards that are more stringent than those deemed necessary for the California list wastes, which Congress indicated should have a higher priority.

Agency Response

The issue of whether the hard hammer applies to characteristic wastes is moot because EPA has promulgated the restrictions for characteristic waste, effective May 8, 1990. In addition, the fact that treatment standards for characteristic level wastes are more stringent than the California List restrictions does not affect the validity of the Third Third rulemaking. EPA

adopted standards for the California list wastes that are taken from the statute, while EPA has adopted rules for characteristic wastes that are based on analysis of actual treatment technologies.

7.15 Treatability of Characteristic Levels

Summary of Comments

Phillips Petroleum (080-p.2) indicated that almost all site specific treatability data for characteristic wastes have been gathered at the characteristic level. Now the Agency is proposing lower treatment levels, yet the regulated community has no information as to the treatability of these wastes at these lower levels and for all waste matrices. This problem is especially pronounced for metals, particularly chromium.

Tyler Pipe (131-p.2) stated that a major technical problem exists in properly identifying the appropriate treatment levels for characteristic wastes that exhibit the characteristic of EP toxicity. The commenter stated that this problem is virtually insurmountable, since, by definition, the characteristic wastes encompass the entire possible range of waste matrices. It is impossible for the Agency, or anyone for that matter, to characterize the matrices and treatability of all of the possible materials that could be classified as characteristic wastes. It is probable that there will be wastes that will be harder to treat and easier to treat than some other waste that has the same classification.

The commenter stated that the Agency must specify treatment standards for specific waste characteristics or constituents based on BDAT for the least treatable waste in a particular category. In addition, the technical inability to predict the treatability of all possible wastes that exhibit a particular characteristic is ample justification for establishing the standard at the characteristic level rather than setting an arbitrary treatment

standard based on a waste that is assumed to be representative of all other wastes with a specific characteristic.

Agency Response

EPA generally agrees with most of these comments. Information from the commenters has shown that a number of characteristic waste matrices cannot be treated to the levels in the proposal. The achievable levels for the wide range of matrices in a given characteristic code are highly variable. EPA is not in a position to set out a large number of new treatability groups for EP toxic wastes or other characteristic wastes. Consequently, the level EPA determines is achievable for the range of waste for a given characteristic waste code reflects matrices that are more difficult to treat. Based on the available information, EPA has established treatment standards for most wastes that are expressed as concentration levels equal to or greater than the characteristic levels. EPA, however, is establishing concentration-based standards below the characteristic level for EP toxic pesticide non-wastewaters and reactive cyanides. Because the ability to treat these wastes is less matrix-dependent than for other wastestreams, the Agency believes that the prescribed levels can be consistently achieved through available technology.

EPA recognizes that some characteristic wastes may be unable to meet the treatment standards expressed as concentration levels. EPA has established treatability variance procedures to account for wastes that cannot be treated to meet the applicable treatment standards even if well-designed and well-operated BDAT treatment systems are used (40 CFR 268.44). Generators whose wastes differ significantly, either physically or chemically, from the wastes

used for setting treatment standards may petition for a treatability variance. To obtain a variance, the petitioner must demonstrate that the existing treatment standard(s) cannot be achieved. The variance procedure can result in the establishment of a new treatability group and corresponding treatment standards that apply to all wastes meeting the criteria of the new waste treatability groups.

Summary of Comments

IRECO Inc. (126-p.4) stated that there are a large number of waste matrices for the EP toxic wastes. Additionally, there are likely to be a large number of wastes that exhibit two or more characteristics or contain two or more constituents of concern. For example, the commenter expects to generate a waste that is EP toxic for lead and selenium. It is not clear at present whether the waste would be treatable in the manner prescribed in the regulations. Some of the questions that remain to be answered include: Will the presence of selenium render the waste unsuitable for lead recovery? If lead is below 2.5 percent, should the waste be vitrified as prescribed for selenium, or stabilized, as prescribed for lead? It is likely that vitrification and stabilization cannot be carried out on the same material. The commenter suggested that the regulated community could provide a number of other troublesome scenarios.

Agency Response

EPA recognizes that a wide variety wastes are EP toxic and many of them may exhibit two or more characteristics or constituents of concern.

Generally, when a waste has overlapping treatment standards, either the most waste code specific standard applies or both standards apply. In the case described by the commenter, it may be necessary to request a treatability variance as described above. Furthermore, it is for reasons such as those elucidated by the commenter, that the Agency is planning further study of these wastes.

Summary of Comments

Department of Energy (198-p.18) stated that Radioactive Mixed Wastes (RMW) that exhibit characteristics represent very diverse waste types, matrices, and forms. The proposed characteristic waste treatment standards that are below characteristic levels, based on technologies applicable to non-radioactive hazardous wastes, may be unattainable for many RMW streams. Because of the vast differences in waste types, matrices, and metal concentrations contained in characteristic wastes, and RMW in particular, flexibility is required to allow different treatment methods to render wastes nonhazardous. Furthermore, treatment of RMW beyond characteristic levels without considering the radioactive component may pose high risks. Treatment of RMW requires special handling techniques. The commenter expressed concern about EPA's proposal because it is necessary to consider the radioactive component in the application of treatment technologies for RMW; potential radiation exposure must be limited during treatment and disposal. Under both the Atomic Energy Act and EPA guidance, radiation doses cannot be incurred to treat wastes unless the benefits of that treatment outweigh the radiation doses incurred. The commenter is concerned that treatment of characteristic

RMW below characteristic levels will provide only minimal and speculative benefits, while imposing potentially unavoidable radiation dose costs.

Agency Response

EPA recognizes that flexibility is required to allow different methods of treatment to be used for the wide variety of differences in characteristic wastes and in general, the Agency prefers to set treatment standards expressed as concentrations in the treated waste for this reason. The commenter seems to be primarily concerned with treatment beyond the characteristic level; the Agency notes that in the final rule, with the exception of EP toxic pesticide non-wastewaters and reactive cyanides, treatment standards are expressed either as specified methods, or as concentrations equal to or greater than the characteristic levels. Also, the Agency has set four standards for mixed wastes in this rule and is undertaking a policy study of the storage prohibition for mixed waste.

7.16 Specification of Treatment Standards or Technologies

Summary of Comments

Several commenters (Kodak (L005-p.3), Department of Energy (198-p.19), and Air Products (169-p.2)) indicated that EPA should set the treatment standard equal to the characteristic level. Furthermore, the Agency should use a treatment level rather than a specified treatment technology because many complications arise when separate treatment standards or technologies are specified. Some treatment standards applicable to listed wastes that could also be classified as characteristic wastes contradict treatment technologies specified for the characteristic wastes. Another commenter (Glass Packaging Institute (078-p.13)) believed that there is insufficient data to indicate that its characteristic wastes can be treated to below the regulatory level for chromium, cadmium, and lead. The commenter stated that where the Agency lacks data, a method of treatment should be prescribed rather than a treatment level.

Agency Response

EPA's experience in implementing the LDR program has reinforced its view, first expressed in the solvents and dioxins preamble, that wherever possible, the Agency prefers to establish concentration-based performance standards. Concentration-based standards provide the regulated community with maximum flexibility to develop and implement compliance strategies. The Agency does find it necessary, however, to specify treatment methods when data are unavailable, or there are problems with analytical methods, or there is a desire to prevent other management options.

8. MINING WASTES

Summary of Comments

Several commenters (Westinghouse (167-p.7), du Pont (189-cover letter), Kodak (L005-p.21), the Fertilizer Institute (092-p.3), and Precious Metals Producers (203-p.2)) concurred with the Agency that mineral processing wastes recently removed from the Bevill exclusion and found to exhibit one or more hazardous characteristics should be considered newly identified. The commenters also agreed with EPA that treatment standards for characteristic wastes proposed in the Third Thirds rule should not apply to these mineral processing wastes. The commenters believed the Agency's approach is appropriate because no technical review has been done for these mineral processing wastes to determine whether the treatment standards are achievable or necessary. One commenter (203) urged the Agency to resolve in the current rulemaking the issues that might influence the future selection of treatment standards for mineral processing wastes in a manner that is consistent with the statutory requirements of RCRA and on the basis of accurate and complete information. Another commenter (092)(joined by American Mining Congress (201-pp.3-9) urged EPA to employ the flexibility allowed under RCRA Section 3004(x) for formulating treatment standards for mineral processing wastes in light of the special characteristics of such wastes and the practical difficulties associated with implementation of such requirements.

Agency Response

Mineral processing wastes recently removed from the Bevill exclusion are considered "newly identified" because they have become subject to Subtitle C regulation subsequent to enactment of HSWA. Although these wastes are not subject to the hard hammer provisions, the Agency retains the authority to require that these wastes meet BDAT treatment standards for characteristic wastes. The Agency, however, has chosen not to apply BDAT standards to mineral processing wastes until it has performed the technical analyses needed to determine if these standards are achievable. The Agency believes that the techniques used to manage mineral processing wastes are sufficiently different from other characteristic wastes to warrant additional analyses. EPA is currently studying mineral processing wastes for a required Report to Congress and will determine the appropriate BDAT for these wastes in the near future.

Summary of Comments

Several commenters (Westinghouse (167-p.7), Kennecott Corporation (102-pp.2-6), Olin (129-p.31) du Pont (189-cover letter), and Cyprus Copper (121-p.2)) supported the Agency's approach that mineral processing wastes should not be subject to the BDAT standards for characteristic wastes proposed in today's rule. One commenter (102) argued that there is no reason to expect mineral processing wastes to have treatability characteristics similar to those for other hazardous wastes addressed in the rulemaking. For instance, mineral processing wastes do not usually contain organic chemicals, unlike many of the wastes dealt with in the rule. More important, the commenter (joined by ARCO (193-p.4) and American Mining Congress (201-pp.3-9)) asserted

that RCRA Section 3004(g) clearly states that the statutory schedule requiring EPA to publish this proposal does not apply to wastes not regulated as hazardous at the time of the 1984 HSWA enactment. Another commenter (129) argued that these wastes are subject to the RCRA Section 3004(g) determination under HSWA that EPA has six months in which to determine appropriate treatment standards for newly identified wastes and that a separate rulemaking should address these wastes vis-a-vis the land disposal restrictions. Another commenter (121) asserted that time constraints for laboratory services make it impossible to comment on whether specific mining wastes can be treated to proposed standards within this comment period. The commenter contended that to solve this, EPA could lengthen the comment period or promulgate an interim rule while collecting data. Three of the commenters (102, 129, and 189) maintained that the California list prohibitions do not apply to the newly identified mineral processing wastes.

Agency Response

The Agency acknowledges the concerns expressed by the commenters, and as stated in the previous response, EPA will conduct technical analyses to determine the appropriate BDAT standards. Rather than promulgate an interim rule, the Agency will determine BDAT standards based on the results of these technical analyses and issue a final ruling at that time. The Agency has chosen not to apply the California list prohibitions to newly identified wastes in order to prevent severe disruptions to the regulated community.

Summary of Comments

Cyanokem (110-p.38) urged EPA to set BDAT treatment standards for newly listed mineral processing wastes effective May 8, 1990. The commenter asserted that Congress intended that the six month period for identifying BDAT for a newly listed waste was to be a firm deadline. The commenter argued that the Agency should develop BDAT as part of the listing process since the data used to list a waste can be used to set treatment standards. The commenter argued that because EPA has comprehensive information available from the listing process and latitude in methods for setting BDAT (e.g., technology transfer, surrogate standards), no more than six months is needed to set BDAT requirements.

Agency Response

Data collected and analyzed as part of the listing process are different from the types of data used to determine BDAT standards. Thus, the analyses performed to determine whether a waste should be listed are not applicable to determining appropriate BDAT treatment standards. The Agency also notes that in the case of mineral processing wastes, the majority of the analyses performed have been to determine whether they fall within the scope of the Bevill amendment (i.e., high volume/low hazard). Thus the Agency does not agree that it has sufficient data at this time to determine BDAT standards for mineral processing wastes.

Summary of Comments

HIFI (112-p.3) argued that the treatment standards for characteristic waste should apply to characteristic mineral-related hazardous wastes. The commenter noted that wastes already deemed characteristically hazardous under 40 CFR Part 261 represent various processes and industries. The commenter also questioned EPA's consideration of the specific differences among mineral wastes without equal focus on the significant differences between other characteristically hazardous wastes.

Agency Response

The Agency notes that mineral processing wastes have been exempted from Subtitle C regulation because they were thought to have "special" characteristics (e.g., less amenable to Subtitle C waste management techniques). As stated above, EPA believes that mineral processing wastes are sufficiently different from other characteristically hazardous waste to warrant further study to determine the appropriate BDAT standards.

Summary of Comments

The Environmental Defense Fund (125-pp.9-12) disputed EPA's position that mineral processing wastes should be classified as "newly identified," contending that these wastes were improperly excluded from regulation in the first place by an illegal interpretation of the Bevill Amendment in 1980. The commenter contended that the Court of Appeals held that these wastes should have been regulated as hazardous since the beginning of the program in 1980,

which is well before the 1984 HSWA enactment. The commenter further noted that Congress intended that only high volume/low hazard wastes be covered by the Bevill Amendment, and because these wastes are not high volume/low hazard, they were not considered by Congress to be in the scope of Bevill at the time of HSWA deliberations. Therefore, they should not be considered newly identified now.

The above notwithstanding, the commenter asserted that mineral processing wastes must meet treatment standards for characteristic wastes. The commenter contended that the short time granted in Section 3004(g)(4) and Section 3004(m) to promulgate treatment standards for newly identified wastes is evidence of Congress' intent that the Agency act quickly and not test every wastestream. The commenter maintained that EPA historically has proposed treatment standards for characteristic wastes without extensive data on every wastestream. The Agency fails to explain why a similar approach is not appropriate for mineral processing wastes. In addition, the commenter claimed that the Agency has not demonstrated why it believes mineral processing wastes are so different from other characteristic wastes that treatment techniques deemed appropriate in other circumstances are not applied to mineral processing wastes

Agency Response

The Agency disagrees with the commenter that mineral processing wastes cannot be considered newly identified wastes. Mineral processing wastes have become subject to RCRA Subtitle C regulation subsequent to HSWA enactment and thus are not subject to the hard hammer provisions. The Agency also does not agree with the commenter's view that Congress held a narrow interpretation of

the Bevill amendment at the time of the HSWA deliberations.

As stated earlier, the Agency has the option of imposing BDAT standards on newly identified wastes, including mineral processing wastes. EPA has decided not to impose these standards until it has completed the necessary technical analyses.

Summary of Comments

The Hazardous Waste Treatment Council (172-p.128) stated that mineral processing wastes recently removed from the scope of Bevill Amendment should not be considered newly listed wastes. Also, the commenter claimed that one of its member companies has submitted data demonstrating the feasibility of stabilization for these mineral processing wastes. The commenter suggested that listing and determination of BDATs be done simultaneously, because the length of time usually taken to list a waste is sufficient to determine BDAT. The commenter asserted that BDAT should be set for mineral processing wastes, because EPA has had years to study these wastes. The commenter urged EPA to move forward with completing a full BDAT program for all hazardous wastes as soon as possible. The commenter argued that EPA should issue waste-code specific BDAT treatment standards where the data exist or use technology transfer in the absence of data. The commenter stated that, at a minimum, the D-code metal waste standards as well as the corrosive waste BDAT should apply, and so should the California list standards.

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Agency Response

The Agency has not fully evaluated the data cited by the commenter. These data, along with all other data submitted to EPA, will be evaluated as part of the Agency's efforts to determine the appropriate BDAT standards for mineral processing wastes. As stated earlier, the listing of a waste and the determination of BDAT standards are separate processes with different data needs and analyses. EPA also notes that mineral processing waste have only been studied to determine whether they meet Bevill criteria, and that the Agency has not studied these waste to ascertain if BDAT standards are achievable.

The Agency believes that it is not compelled to apply California list prohibitions to newly listed and newly identified wastes and has chosen not to do so in today's rule. The Agency believes that to apply these prohibitions would result in large disruptions to the regulated community without significant environmental benefit.

Summary of Comments

One commenter (du Pont (189-pp.40-44)) supported EPA's position that mineral processing wastes recently removed from the Bevill exclusion should be considered newly identified for the purposes of the land disposal restrictions, otherwise, these wastes could become subject to the California list prohibitions, leaving du Pont with insufficient time to retrofit its disposal facilities and left with no acceptable disposal method for approximately 2,000,000 tons (annual) of chloride wastes. The commenter further noted that because titanium dioxide wastes were not listed as

hazardous at the time of the 1984 HSWA Amendments, they should now be considered newly identified. This will enable EPA to determine, propose, and promulgate the applicable BDAT standards in a timely manner.

The commenter also opposed applying the California list prohibitions to "newly identified" mineral processing wastes because these wastes were exempt from Subtitle C regulation when the prohibitions were promulgated. As a result, none of these wastes were included in the technical studies that support the prohibitions, and the Agency would be acting in an inequitable and capricious manner to apply the California list prohibitions to these wastes. The commenter held that if EPA decides it must apply the prohibitions to these wastes, it should promulgate a two-year national variance on the basis that it did not address these wastes in the 1987 deliberations.

Agency Response

As mentioned previously, the Agency believes that it is not compelled to apply California list prohibitions to newly listed and newly identified wastes and has chosen not to do so in today's rule. The Agency believes that to apply these prohibitions would result in large disruptions to the regulated community without significant environmental benefit.

Summary of Comments

American Mining Congress (201-pp.3-9) agreed with EPA that mineral processing wastes recently removed from the Bevill exclusion should be considered newly identified and not subject to the statutory hard hammer provision. The commenter noted that characteristic wastes and those listed

wastes brought into the system after the 1984 enactment of HSWA are not subject to the hard hammer, and therefore, the hard hammer does not apply to those mineral processing wastes recently removed from the scope of Bevill. The commenter argued that Congress established separate scheduling requirements for the wastes identified post-HSWA enactment and strongly objected to removing mineral processing wastes from the protection of the Bevill Amendment and immediately subjecting them to the hard hammer provisions where no land disposal is allowed as of May 1990. The commenter further noted that the Simpson Amendment was enacted specifically to prevent mineral processing wastes from automatically being treated in the same manner as all other hazardous wastes.

In addition, the commenter generally supported EPA's decision not to impose the BDAT it has identified for characteristic hazardous waste in general to newly identified mineral processing wastes. The commenter requested that the Bureau of Mines be given a major role in any study to determine BDAT for mineral processing wastes.

Agency Response

The Agency believes that today's rule addresses most of the issues raised by the commenter. The Agency will perform technical analyses to determine BDAT treatment standards for mineral processing wastes and will use all of the available information in its decision making, including any appropriate information provided by the Bureau of Mines.

Summary of Comments

U.S. Borax (211-pp.1-3) concurred with EPA's approach of handling mineral processing wastes as newly identified, and as such they should not be subject to the hard hammer. The commenter asserted that in developing treatment standards for these wastes the Agency should consider the differences between mineral processing wastes and manufacturing wastes. They argued that the standards for the protection of human health and the environment should not be the same for characteristic mineral processing wastes and manufacturing wastes, especially in light of respective proximity to centers of population. The commenter argued that treatment to below characteristic levels should not be required and urged EPA to develop a set of regulations and standards specifically for all wastes from beneficiation and extraction and mineral processing.

Agency Response

The issues raised by the commenter in regards to development of treatment standards for mineral processing wastes are not at issue in the Third Third rule. The criteria used to determine the appropriate BDAT treatment standard for a restricted waste are attainability of the standard and availability of the technology. The same criteria are used for all restricted wastes, including mineral processing wastes removed from the Bevill exemption.

Summary of Comments

OxyChem (138-pp.10-12), Amoco (240-p.6) and Chemical Manufacturers' Association (L007-pp.44-48) supported the Agency's classification of wastes that have been removed from the Bevill exclusion as newly identified wastes. Two of the commenters (138 and L007) asserted that this will enable the Agency to develop appropriate land disposal requirements and treatment capacity analyses for these wastes in an orderly manner. If "de-Bevillized" hazardous mining wastes are not considered newly identified and are subject to immediate application of BDAT standards, these wastes will cause massive disposal problems and significant non-compliance, because the Agency has not yet determined whether national capacity exists to handle these wastes or whether these wastes can be treated to proposed levels. The commenters stated that the proposed BDAT standards for characteristic wastes should not apply to newly identified mineral processing wastes. These commenters (138, L007) also noted that the appropriate standards can be promulgated only after EPA completes its study to determine BDAT for mineral processing wastes. The commenter asserted that it would be premature to apply EP toxic metal standards to de-Bevillized hazardous wastes, because limited EP toxic metal data are available and no treatment data are available. The commenters argued that only after EPA has studied the technical and economic feasibility of applying the proposed BDAT standards for EP toxic wastes to mineral processing wastes can a determination be reasonably made as to whether such standards should apply.

Agency Response

The Agency believes that it has addressed most of the issues raised by the commenters. The Agency, however, notes that its decision not to apply BDAT standards to mineral processing wastes is a discretionary one, and that EPA is not required to conduct an economic feasibility study prior to imposing BDAT standards. The Agency notes that it is required to perform studies on those wastes that have been retained in the Bevill exclusion and not on wastes failing to meet the low hazard/high volume criteria. The Agency also notes that its decision to defer imposition of BDAT standards is based only on considerations relating to the appropriateness of the existing standards and availability of treatment data, not capacity availability.

Summary of Comments

New Jersey Department of Environmental Protection (253-pp.4-5) supported EPA's decision to postpone application of LDRs to the mineral processing wastes removed from the Bevill exemption. The commenter recommended further that the Agency not apply the BDATs for EP toxic metals to these wastes, noting that many mineral processing wastes are in a soil matrix and the highly restrictive EP toxic BDATs would stop many planned or ongoing cleanup efforts. The commenter further noted that even if treatment of the wastes to this level were possible, disposal of the treated soil would further aggravate capacity problems at landfills. The Agency also should consider applying a risk-based approach to these wastes.

Agency Response

The Agency is deferring application of BDAT standards to mineral processing wastes until technical analyses are completed. As stated in the previous responses, the Agency is not amending the criteria it uses to determine appropriate BDAT treatment standards.

Summary of Comments

Allied-Signal (267-p.63) supported EPA's proposal to treat wastes that have been withdrawn from the Bevill exclusion as newly identified wastes. The commenter argued that the Agency should include specific language within the rule regarding this and suggested the following:

Section 268.35(n) -- The requirements of paragraphs (a) through (k) of this section do not apply to mineral processing wastes that have been withdrawn from the protection of RCRA Section 3001(b)(3)(A)(ii). These wastes will be considered "newly identified" wastes that may continue to be land disposed until such time as the Agency promulgates BDAT treatment standards for such specific wastes.

Agency Response

The Agency believes that the concerns raised by the commenter have been fully addressed in today's preamble and will not write regulations specifying wastes that are not regulated.

Summary of Comments

ASARCO (269-pp.7-10 and 14-20) agreed with the Agency that newly listed mineral processing wastes should not be subject to the hard hammer and urged EPA to clarify that no characteristic wastes are subject to the hard hammer. The commenter contended that EPA must give special consideration to the newly identified mineral processing wastes, and that EPA must conduct a full study of all mineral processing wastes, as mandated by Congress. Without benefit of this study, EPA lacks the appropriate information to develop treatment standards for these wastes. The commenter made the following points:

- EPA should consider the unique properties of mineral processing wastes before developing BDATs.
- EPA should exercise the flexibility granted in the Simpson Amendment by modifying Subtitle C requirements, including LDRs, for mineral processing wastes.
- RCRA Section 3004(d) is clear that the California list prohibitions do not apply to newly identified mineral processing wastes.
- Land disposal restrictions should not be applied to processing activities that use, reuse, or recycle secondary materials that are not discarded.

The commenter opposed, based on chemical and physical differences between the wastes, the application of BDATs proposed for EP toxic metals to mineral processing wastes.

Agency Response

The issues raised by the commenter are generally addressed by amendments to the rule. The Agency notes that it is required to perform studies only on those wastes retained in the Bevill exclusion. All other mineral processing wastes become newly identified wastes and subject to regulation. As stated elsewhere, the Agency believes that the uniqueness of mineral processing wastes warrants further technical analysis before determining appropriate BDAT standards.

9. U and P WASTE SPILLS

9.1 Spill Constitutes Disposal

Summary of Comments

Union Carbide (190-pp.19-20) disagreed with EPA's position that areas in which spills occur can become regulated units. This commenter argued that spill areas are not regulated units and that the Agency should remove the suggestive language that they are from the preamble of the final rule.

Agency Response

Under Section 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof (See 40 CFR Section 261.2(f)).

Summary of Comments

Stratcor (271-pp.1-3) expressed concern that their recycling efforts will be precluded under the proposed language because if contaminated soils are classified as solid or hazardous wastes, they could not be recycled at the commenter's facility which is not a RCRA treatment, storage, or disposal facility. This outcome, the commenter stated, alters the RCRA intent to

permit legitimate recycling. The commenter also noted the need for not overly restricting storage methods for soil awaiting recycling. The commenter proposed following best management practices in accordance with other vanadium mill feedstocks.

Agency Response

The Agency believes that the issue of spilled commercial products is addressed by existing regulations and therefore, has decided not to proceed with the quantified standard that it proposed. Moreover, these provisions do not preclude legitimate recycling. However, under 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste and therefore, a general assertion of intent to recycle does not fulfill the required burden of proof to demonstrate legitimate recycling.

Summary of Comments

Several commenters (Dow (179-p.8), Chemical Manufacturers Association (L007-pp.69-73), American Petroleum Institute (168-pp.70-77), Olin (129-pp.32-33), PPG (133-pp.1-2), Unocal (233-p.4), Ford (180-pp.1-2), Stratcor (271-pp.1-2), Union Carbide (190-pp.19-20), and Kodak (L005-pp.12-13)) argued that the 90-day time period during which residues must be recycled is too restrictive. The commenters asserted that such a limit will create a disincentive to recycle because this time frame is often insufficient to recycle material properly given the planning, arranging, and construction

sometimes necessary for handling unexpected wastestreams.

Two commenters (179 and 129) objected to the Agency modifying the definition of a solid waste by including a time limit for recycling and reuse of U and P materials. Both commenters proposed that such changes in the definition of hazardous wastes should be addressed in a separate rulemaking to allow adequate comment.

Agency Response

EPA believes that the issue of spilled commercial products is addressed by existing regulations and therefore, has decided not to proceed with the quantified standard that it proposed. Under 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof. Objective considerations that could be pointed to satisfy this burden include whether the generator has begun to recycle the spill residue, the length of time the spill residue has existed, the value of the spilled material, whether it is technically feasible or practical to recycle the spill residue, and whether there is any past history of the company recycling this type of residue. EPA repeats that assertion of intent to recycle does not satisfy the generator's burden of proof. Rather, there must be objective indicators of intent, and the indicators must be strong given that a spill of hazardous material to soil or groundwater is normally a simple act of disposal.

Summary of Comments

Ford (180-pp.1-2) objected to EPA's proposal to classify contaminated soil and ground water removed from a spill as a solid or hazardous waste if residues are not recycled within 90 days of the spill. The commenter stated that notification and cleanup of such spills are already regulated under 40 CFR Parts 280, 300, and 302, and the characterization and disposal of spill residues are already regulated under 261.33(d). Moreover, the commenter noted that in the case of spills from underground tanks, owners or operators may not know about spills for more than 90 days. The commenter concluded that it would not be good public policy to establish an unattainable cutoff when an owner/operator may be operating in good faith to cleanup the waste. The commenter proposed addressing this issue in a separate rulemaking since it is not directly related to land disposal restrictions and, therefore, does not have to be resolved by May 8, 1990.

Agency Response

EPA agrees that the issue of spilled commercial products is addressed by existing regulations and therefore, has decided not to proceed with the quantified standard that it proposed.

Summary of Comments

American Petroleum Institute (168-pp.70-77) stated that CERCLA and National Contingency Plan requirements extensively regulate the management of spilled hazardous substances and no further regulations are needed at this

time. The commenter also stated that EPA offers no valid support for decreeing that 90 days is the maximum period for returning a spill residue to the production process. This commenter argued that, at a minimum, EPA should allow materials intended for recycling to be stored in tanks, containers, or lined surface impoundments for longer than 90 days without being hazardous under the "accumulated speculatively" provisions of 40 CFR Section 261.2(c)(4).

Agency Response

The Agency regards LDRs as potential ARARs for CERCLA and National Contingency Plan requirements, which allow this rulemaking to potentially affect the management of spilled hazardous substances. Regarding specific time limits, EPA believes that the issue of spilled commercial products is addressed by existing regulations and therefore, has decided not to proceed with the quantified standard that it proposed.

Summary of Comments

Union Carbide (190-pp.19-20), Chemical Manufacturers Association (L007-pp.69-73) and Kodak (L005-pp.12-13), disagreed with the suggested time limit of 90 days as a limit as to whether spill residues were or were not solid wastes. One commenter (190) agreed with EPA that recycled residues are not solid wastes, but stated that recycling may not be possible within 90 days because of equipment or production problems.

Two of the commenters (L005 and L007) also claimed that EPA's time limit of 90 days for the recycling of spilled materials is too restrictive. The

commenters argued that 90 days would not allow the construction and use of a ground-water retrieval and recycling system for the purpose of processing contaminated ground water containing recoverable products. One of the commenters (L007) also cited corrective actions as another example of when the "early" classification of a spill as hazardous would discourage the implementation of innovative approaches to recycling the spill product. Instead of imposing a 90-day time limit, this commenter (L007) proposed that EPA should rely on the generator's burden of proof in Section 261.2(f).

Agency Response

EPA believes that the issue of spilled commercial products is addressed by existing regulations and therefore, has decided not to proceed with the quantified standard that it proposed. Under 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof.

Summary of Comments

Environmental Defense Fund (125-pp.12-15) and EnviroSAFE (081-p.17) argued that a spill residue should be classified as a solid waste immediately after a spill. One commenter (125) objected to EPA's clarification that commercial chemical product spill residues are solid wastes, unless such residues are recycled within 90 days. This commenter stated that spill

residues are inherently "waste like" and thus are solid wastes irrespective of whether the residues are recycled. Furthermore, the wastes always will expose human health or environmental receptors to hazardous constituents in concentrations above background and may pose a substantial risk to human health and the environment. This commenter noted that although EPA has placed the burden of proof on the waste generator to prove the waste residues will be recycled, EPA first must litigate whether spill residues will be recycled while the residues are mitigating into the environment. The commenter also stated that EPA attempts to justify the 90-day period to allow recycling are insufficient, and disagrees with the Agency's comparison with allowing generators to accumulate waste in tanks or containers without obtaining a RCRA permit. EnviroSAFE (081) stated that all spilled material should be considered a solid waste immediately after a spill occurs since there is no method for ensuring the 90-day time period.

Agency Response

The Agency agrees that in most cases, spilled commercial chemical products are solid wastes because the nature of the spill constitutes disposal, and because of the difficulty of recycling spill residues in matrices such as groundwater. EPA also agrees that the issue of spilled commercial products is addressed by existing regulations and, therefore, has decided not to proceed with the quantified standard that it proposed. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof.

Summary of Comments

Several commenters (Chemical Manufacturers Association (L007-pp.70-73), PPG (133-pp.1-2), American Petroleum Institute (168-pp.70-77), Synthetic Organic Chemical Manufacturers Association (108-pp.36-37), Unocal (233-p.4), ASARCO (269-p.39), American Mining Congress (201-pp.33-34), National Paint & Coating Association (158-p.1), Kodak (L005-pp.12-13), and Union Carbide (190-pp.19-20)) objected to EPA's determination that spilled material and contaminated media are automatically solid wastes. The commenters argued that it is the intent to discard or abandon a material that indicates that there is no realistic prospect of recovery or reuse. They argued that a spill alone does not constitute a type of disposal.

Agency Response

Under Section 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof.

Summary of Comments

Chemical Manufacturers Association (L007-pp.70-73) and Kodak (L005-pp.12-13) disagreed with the Agency's view that spill residues are solid and hazardous wastes "by the fact of the spill itself, which is a type of disposal." The commenters stated that, at the time of a spill, a commercial

chemical product is not a solid or hazardous waste; therefore, the spill should not be considered a type of disposal. One of the commenters (L007) joined by PPG (133-pp.1-2) and National Paint & Coating Association (158-p.1), suggested that spill residues should be considered a hazardous waste only if they have been "abandoned."

Agency Response

Under Section 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof.

Summary of Comments

Synthetic Organic Chemical Manufacturers Association, (108-pp.36-37), American Petroleum Institute (168-pp.70-77), and Unocal (233-p.4) stated that EPA's proposal is flawed because it presumes that the spilled materials and contaminated media are automatically wastes without regard to whether (1) the contaminated media is the result of a clean up, and (2) there is any intent to discard either medium or the spilled material itself. One commenter (168) stated that this definition contradicts the decision rendered in the American Mining Congress v. EPA, 824 F.2d 1177 (D.C. Cir. 1987). This commenter opposed adopting the amended definition of solid waste to U and P wastes or any other spills of listed waste. The commenter proposed that EPA incorporate intent to discard or create a reasonable presumption of such an intent. At a

minimum, the commenter argued that EPA should allow the responsible party to rebut such a presumption with evidence that the materials have been or will be legitimately recycled.

One commenter (108) stated that spills of commercial chemical products are accidental releases and provided that a generator acts promptly to recover the spilled material, the product should not be deemed a form of discard. Therefore, the 90-day time limit EPA proposes is irrelevant. This commenter argued that recycled spilled commercial chemical products should be exempt from regulation once they are removed for legitimate recycling, regardless of when the removal or recycling occurs.

ASARCO (269-p.39) and the American Mining Congress (201-pp.33-34) argued that broadening the EPA definition of solid waste is inappropriate at this time and inconsistent with American Mining Congress v. EPA (op. cit.). AMC asserted that the Agency should develop and promulgate a final, revised regulatory definition that complies with the court decision and excludes from RCRA Subtitle C jurisdiction materials that are recycled or reused. Asarco argued that the proposal goes beyond the scope of this rulemaking because P and U listed materials are not normally classified as "solid wastes" when recycled. This commenter opposed the concept that spill residue are "inherently waste-like" and therefore that they are solid wastes regardless of the method of subsequent recycling.

Agency Response

EPA believes that the intent to recycle does not satisfy the generator's burden of proof. Rather, there must be objective indicators of intent, and the indicators must be strong given that a spill of hazardous material to soil

or groundwater is normally a simple act of disposal. Under Section 261.33, the mere assertion of intent to recycle a spill residue of a commercial chemical product does not automatically exempt the spill area from Subtitle C regulation. The generator has the responsibility to prove that the spilled material is not a solid waste, and a general assertion of intent to recycle does not fulfill the required burden of proof. Objective considerations that could be pointed to satisfy this burden include whether the generator has begun to recycle the spill residue, the length of time the spill residue has existed, the value of the spilled material, whether is technically feasible or practical to recycle the spill residue, and whether there is any past history of the company recycling this type of residue. Incidentally, the view of the American Mining Congress decision was recently rejected by a Federal District Court in Sierra Club v. DOE (District of Columbia, 1990).

The Agency agrees that in most cases, spilled commercial chemical products are solid wastes because the nature of the spill constitutes disposal, and because of the difficulty of recycling spill residues in matrices such as ground water. Thus, the American Mining Congress decision would not bear substantially on the question because a real issue is one of recyclability at all.

9.2 "U" Wastes and RCRA Section 261.33(f)

Summary of Comments

Several commenters (Olin (129-pp.32-33), Ford (180-p.2), ASARCO (269-p.39), Ford (180-p.2), Union Carbide (190-pp.19-20), and Chemical Manufacturers Association (L007-pp.69-73)) opposed EPA's proposal to amend 40 CFR 261.33(c) to include residues from inner liners of containers that have held commercial chemical products listed in 261.33(f) on the grounds that such amendments are beyond the scope of this rulemaking. Though the preamble of the proposed rule states that this omission results from an oversight in the May 1981 rule, Olin argued that there is no evidence of intent in the preamble or regulation of the original rule.

This commenter stated that these wastes exist at relatively low levels of toxicity, and that the Agency has not demonstrated that this "oversight" has represented a threat to human health or the environment during the past eight years. The commenter asserted that EPA has not taken into account the impact that triple rinsing will have on its land disposal capacity determination. The commenter concluded that these residues and inner liners represent a newly identified wastestream. The commenter recommended the Agency initiate a new rulemaking if it intends to list these wastes to allow for adequate preparation and response time.

One commenter (180) disputed EPA's claim that the original omission of Section 261.33(f) wastes was unintentional. The commenter claimed that 45 FR 33225 indicates that EPA did intentionally evaluate RCRA Section 261.33(f) wastes separately from Section 261.33(e) wastes. The commenter also noted that the Section 261.33(e) standards for emptying containers in Section

261.7(b)(3) are referenced in Section 261.33(c), while those standards for Section 261.33(f) wastes are not.

Agency Response

The Agency believes that the commenters have misunderstood the intent of the proposed clarification. Contrary to the commenters' fears, the Agency is not subjecting non-acute hazardous wastes to the triple rinsing requirements of RCRA Section 261.7(b)(3). This section applies solely to acute hazardous wastes. The Agency does reiterate its view that the regulatory language was partially in error by omitting reference to residues remaining in containers or in an inner liner contaminated with Section 261.33(f) materials. This omission results from an oversight and is not based on any deliberate decision made by the Agency. The final rule rectifies this omission and will result in that these residues and contaminated inner liners will be subject to Subtitle C regulation.

Summary of Comments

Chemical Manufacturers Association (L007-pp.69-73) claimed that the proposed revision of RCRA Section 261.33(c) is incomplete because it fails to reference the standards for emptying the containers for both waste groups. Therefore, CMA suggested that EPA clarify Section 261.33(c) further by referencing Section 261.7(b) rather than Section 261.7(b)(3).

Agency Response

The Agency agrees with the commenter and has referenced Section 261.7 (b) to Section 261.33(c) in this rulemaking to reference the standards for emptying containers for both waste groups.

Comment Summary

The National Barrel and Drum Association (NABADA) (L021) urged EPA to abandon the proposed clarification to Section 261.33. According to NABADA, the proposal will expand the list of residues from containers and inner liners of containers that have held chemical products listed in Section 261.33(e) to include residues and inner liners contaminated with the Section 261.33(f) materials. The commenter cited correspondence between EPA and NABADA to demonstrate that the original limitation to paragraph (e) was intentional and not an oversight, and hence no clarification is needed. The commenter stated that if the proposal is implemented, virtually all packaging residues would become regulated under RCRA, all transporters would have to be identified, and all receiving facilities would become TSDFs. The commenter proposed that EPA omit Section 261.33(c) in its entirety. Alternatively, the Agency could add an explicit back reference to Sections 261.7(b)(2) and (b)(3), or just (b) alone.

Agency Response

The Agency believes the commenter misunderstood the original intent of paragraph 261.33(e) and disagrees that any omission by the Agency was

intentional. The omission was inadvertent and is rectified in the final rule. However, the Agency does agree with the commenter on the last issue regarding an explicit back reference to Sections 261.7(b)(2) and b(3) and has done so in this rulemaking.

10. DILUTION

10.1 Appropriateness of Aggregation for Centralized Treatment

Summary of Comments

Numerous commenters (Phillips (080-pp.2-5), BP America (098-pp.1,6-9), American Cyanamid Company (087-pp.11-12), Mill Service Inc. (089-pp.3-4), Chevron Corporation (119-pp.1-2), Air Products (169-pp.3-4), Union Carbide (190-pp.3-9), ASARCO (269-pp.36-38), Chemical Manufacturers Association (L007-pp.9-24), and National Paint & Coatings Association (158-p.3)) contended that aggregation of wastewaters for centralized treatment is normal and necessary for cost-effective treatment and should not be considered impermissible dilution. One commenter (098) noted that EPA has used aggregated streams to set BDAT standards, and therefore has already recognized that centralized treatment of these wastes is technically and environmentally sound. Several other commenters (098, 190, 240) asserted that many existing wastewater treatment facilities were designed and implemented before land disposal restrictions were conceived. According to these and other commenters (Vulcan (128-pp.20-21), American Petroleum Institute (168-pp.78-87), Ford (180-pp.3-5), and du Pont (189-pp.1-2)), imposition of the dilution prohibition as proposed will disrupt these facilities and cause large financial burdens. One commenter (080), alleged that if dilution is prohibited, large volumes of wastewater will have to be sent off-site increasing environmental and health risks. A second commenter (128) asserted that such an outcome is intended by neither the Agency nor the Congress when it enacted HSWA. Another commenter (Cyprus Copper (121-p.3)) stated that EPA's proposed imposition of treatment

beyond characteristic levels would be practically and economically unmanageable. Facilities would be required to establish completely parallel and duplicative handling and storage systems for materials that in all ways other than their characteristic history are indistinguishable.

Two commenters (180), Rohm & Haas (194-pp.36-37) asserted that it would be technically infeasible for many large integrated facilities to separate sewer systems in order to collect and treat each stream. One commenter (194) stated that its Bristol facility processes 9,800 batches which generate about 500 different product lines. The commenter estimated that about 1,000 different wastestreams are associated with the intermediate and final production steps of these product lines. According to the commenter, almost all of these wastestreams are piped short distances, aggregated into various collection tanks and sumps, and then transferred into an equalization basin for further centralized treatment. The commenter maintained that few of these aggregated wastestreams exhibit a characteristic, and that determining which, if any, of the exiting wastestreams exhibited a characteristic would be an enormous task. The commenter claimed that virtually all of the 1,000 different wastestreams would have to be analyzed. Another commenter (080) declared that EPA's definition of impermissible dilution may cause the elimination of existing units in a wastewater treatment system such as flow equalization basins or aerobic oxidation lagoons that are downstream from a waste that was once characteristically hazardous. This change, the commenter stated, would reduce the efficiency of a wastewater treatment. The commenter also argued that these units either directly or indirectly reduce the toxicity and mobility of at least one BDAT constituent and therefore satisfy one of the criteria for determining whether dilution is permissible.

Three commenters (087, 098, L007) joined by BP Chemicals (216-pp.16-18) also noted that many deep well facilities aggregate their wastewater prior to injection, and according to one commenter (087) the proposed clarification would change "both the number of injected wastes potentially subject to the prohibition and also the timing of prohibitions for many well facilities."

Agency Response

The Agency has carefully considered all of these comments regarding the wastewater management impacts of the dilution prohibition and its interpretation. In light of these comments, and after extensive assessment, EPA has modified the interpretive positions taken in the November 22, 1989, proposal. Consequently, the Agency is clarifying the following issues.

- The Agency has authority under RCRA Section 3004(m) to ensure that, once generated and destined for land disposal, all hazardous wastes meet 3004(m) standards. EPA, however, agrees that aggregation of hazardous wastes in order to facilitate centralized treatment is an acceptable, and often desirable, practice. Furthermore, EPA recognizes that many centralized treatment systems are technically and environmentally sound, and that treatment systems have been designed to meet facility-specific requirements (e.g., best management practices, mass limitations, adjustments to reflect pollutants in intake water, and conditions on internal wastestreams) of pretreatment and NPDES permits. Thus, under the final rule, facilities are permitted to aggregate

wastes as long as appropriate treatment is applied to the commingled wastes.

- The proposed dilution prohibition was not intended to disrupt existing wastewater systems or undermine other regulatory programs such as the NPDES and UIC permit programs. In developing the final rule, the Agency has attempted to balance its concern that actual treatment takes place and that such treatment is appropriate with its objective to integrate the LDR program with these other existing programs. Consequently, EPA in most cases is not applying the dilution prohibition to characteristic hazardous wastes that are managed pursuant to either the NPDES or UIC program. Further, with the exception of EP toxic pesticide wastewaters, high TOC ignitable wastes, lead and cadmium batteries, and high mercury non-wastewaters, the final rule does not specify the treatment method to remove the characteristic hazard from these wastes. At facilities not managing characteristic wastewaters (i.e., almost invariably facilities regulated under either the CWA or SDWA), dilution as a method of treatment may be used for all non-toxic characteristic wastes. The dilution prohibition, however, does apply to characteristic toxic wastes at these facilities, although aggregation of characteristic wastes, which may lead to some dilution, for the purpose of centralized treatment is permissible.

The Agency also notes that it includes narratives in the preamble to clarify the meaning of impermissible dilution as it applies to centralized treatment systems. Hence, the use of existing wastewater systems such as that

described by one of the commenters (80) can continue. Accordingly, the Agency is not precluding the use of "Subtitle D units" for treating formerly characteristic hazardous wastes that have met the treatment standard. The preamble discusses this issue in more detail.

Summary of Comments

Chevron Corporation (119-pp.1-2) noted that wastewater discharges are regulated by the Clean Water Act and that EPA has itself acknowledged the effectiveness of these systems and, as a result, removed the presumption of hazardousness from mixtures of small quantities of certain listed wastes and large volumes of nonhazardous wastewater where the mixture was destined for treatment in the wastewater treatment system. The commenter urged EPA to continue allowing these practices.

Agency Response

The Agency recognizes that centralized treatment can be an effective and appropriate method for treating compatible wastes and this view has been incorporated into the final rule. The mixture rule exemption, however, is limited to small quantities of solvents and de minimis losses of P and U commercial wastes, as noted in the final rule. These wastes are exempted because of the small quantities involved. For large volume wastes not covered by the exemption, facility operators must determine whether centralized treatment of prohibited wastes is legitimate before such mixing can be done.

Summary of Comments

The Environmental Defense Fund (125-pp.18-21) commended EPA for refining the dilution issue so that generators cannot circumvent treatment requirement or prohibition dates. The commenter, however, believed that the Agency did not go far enough. While noting that determining the propriety of centralized treatment practices and concomitant dilution is a complex task, the commenter proposed that the burden of proof that dilution is acceptable be placed on the regulated community. The commenter suggested that the regulatory community keep records to demonstrate that legitimate treatment is occurring with dilution. The commenter recommended, that based on a similar approach adopted to enforce storage prohibitions, the following language should be added to the dilution prohibitions of 40 CFR 268.3:

Dilution that occurs as a necessary and unavoidable component of a process to treat wastes in accordance with the requirements of this Part is not prohibited; provided, however, that the generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility bears the burden of proving that the dilution is a necessary and unavoidable component of such process and does not otherwise violate the prohibitions of this section.

The commenter agreed with EPA's view to forbid dilution for the purpose of avoiding the land disposal prohibitions. The commenter noted that such a prohibition is particularly important in the case of characteristic wastes where BDAT standards for such wastes are established below characteristic

levels. According to the commenter, without a prohibition to render wastes nonhazardous, the treatment standards would be illusory since the regulated community could dilute the wastes to below characteristic levels and avoid all treatment obligations.

Agency Response

The Agency believes that its position in the final rule fulfills the objective of ensuring that the dilution prohibition rules of 40 CFR 268.3 remain intact and are interpreted in a manner that ensures protection of human health and the environment. Clearly, the Agency needs to confirm that waste prohibited from land disposal may not be diluted ". . . as a substitute for adequate treatment to achieve compliance with [a treatment standard]...to circumvent the effective date of a prohibition...to otherwise avoid a prohibition . . . , or to circumvent a [statutory] prohibition..." (see 40 CFR 268.3).

However, interpretation and implementation of this dilution prohibition is a complicated challenge. Specifically, EPA has extensively assessed two issues: 1) achieving constructive regulatory interface with programs under the CWA and SDWA, and 2) quantifying interpretations in a meaningful way. Thus, in the final rule, EPA provides a revised interpretation of how the dilution prohibition will be applied to prohibited characteristic wastes. At this time, EPA is not modifying 40 CFR 268.3 as suggested by the commenter. Rather, the Agency has expended considerable effort in assessing and clarifying the existing language. Existing regulatory language requires the generator to determine appropriate treatment standards for hazardous wastes. The commenter's suggestion regarding burden of proof is interesting and

possibly constructive. EPA has not had the time to assess it fully. The test that dilution will be a "central and unavoidable" part of the treatment process, however, appears far too broad. No centralized treatment (i.e., mixing of different wastes before treatment, inevitably involving some dilution) is totally unavoidable. It is merely more cost-effective and equally or (in some cases) more efficient. The Agency's experience is that bright-line verbal formulations in this area have proven too imprecise to meaningfully reflect the range of existing, generally permissible, treatment practices. The Agency is thus stressing in the preamble the notion that centralized treatment must involve compatible wastes, and indicate known situations where treatment of incompatible wastes occurs.

Summary of Comments

The Halogenated Solvents Industry Alliance (166-pp.6-7) agreed with EPA's overall approach to dilution. The commenter, however, expressed concern over EPA's objective that heavily concentrated wastestreams amenable to a particular type of treatment technology should be segregated for such treatment rather than aggregated for less appropriate treatment that does not substantially reduce the waste's toxicity or mobility. The commenter asserted that this objective could require a waste generator to segregate concentrated wastestreams that are currently combined with other less concentrated wastestreams as part of an integrated wastewater management system prior to undergoing treatment in accordance with the land disposal restrictions. The commenter believed that issues could arise as to whether the treatment of the aggregated waste was "appropriate" and whether it "substantially" reduced the waste's toxicity or mobility. The commenter suggested that EPA state "that

generators are not required to undertake modification to integrated waste management systems in order to segregate particular prohibited wastestreams for separate treatment as long as the aggregated wastestream is treated in accordance with BDAT treatment standards."

Agency Response

The commenter raises an important issue in recognizing the difficulty that would arise in adequately and practically defining what treatment is appropriate and whether or not any given treatment substantially reduces toxicity and mobility of a BDAT constituent. EPA has carefully considered this issue, and has modified the final rule based on several grounds -- including partial agreement with the commenter. Without further elaboration and quantification, the Agency would not only fail to provide clear guidance but also potentially would fail to achieve the objective of assuring that wastes are treated by appropriate treatment methods. Quantifying the removal necessary to constitute legitimate treatment would be very complicated given the number of prohibited wastes, treatability groups, treatment methods, and treatment train configurations. Given these potential problems and complications, EPA has decided to provide additional interpretative guidance on the existing dilution prohibition (40 CFR 268.3). The final rule in most cases does not apply a dilution prohibition to characteristic wastes that are managed pursuant to the NPDES, pretreatment, and Class I UIC disposal programs. Under the interpretation in the final rule, in many cases, characteristic wastestreams may be combined with other wastestreams as part of an integrated wastewater management system prior to undergoing treatment.

Summary of Comments

Union Carbide (190-pp.3-9) argued that wastewater facilities already in compliance with NPDES requirements would now have to be revamped or replaced with alternate treatment systems at great cost. According to the commenter, if the proposal were implemented, aggregating caustic and acidic streams that result in neutral wastestreams amenable to biological treatment would no longer be possible.

The commenter maintained that EPA's definition of permissible dilution allows the natural commingling or aggregation of characteristic hazardous wastes in a process sewer, because the resulting mixture is being prepared to be treated biologically and will result in the removal and chemical change of BDAT constituents in each affected stream. The commenter contended that it should make no difference whether mixing is done in a process sewer or in an equalization tank prior to the land disposal unit.

The commenter asserted that the prohibition will increase the amount of wastes that will need to be incinerated and would be expensive and would increase the burden on the already scarce incineration capacity. The commenter estimated that at one of its facilities, 130 million tons would have to be burned in on-site boilers. Hence, if the proposal is to be implemented, then the Agency must consider a national capacity variance for ignitable wastewaters. The commenter also claimed that the proposal would increase air emissions. For example, the commenter asserted that the incineration of chlorosilane wastestreams would cause the emission of fine silicon dioxide particulates. According to the commenter, installation of an expensive, specialized control device will be needed.

Agency Response

The Agency has considered this comment, along with others offering examples of severe potential disruptions in established wastewater treatment systems, and has modified its position in the final rule. First, by stating that mixing is legitimate treatment for most corrosive and ignitable wastes, the commenter's principal concerns are satisfied. In addition, the NPDES program is sophisticated and well established, and many facilities have designed and constructed complicated and environmentally sound treatment systems. Proper integration of the current CWA regulations with land disposal restriction regulations would require extensive technical and policy analysis. Many complications such as those elucidated by the commenter would arise, and these would be site-specific. Overlap and disruption would have the potential to decrease overall protection of the environment. EPA would need to address a number of regulatory issues to fulfill the obligations underlying Section 1006(b) of RCRA to integrate properly the land disposal restrictions and prevent impractical overlap with and disruption of the existing CWA program. With respect to the example of aggregation of caustic and acidic wastestreams, EPA concludes in the final rule that mixing of wastestreams to eliminate characteristics is appropriate for purely corrosive wastes, and for certain ignitable and reactive wastes. These are properties that can effectively be removed by mixing. Finally, as the commenter suggests, air emissions issues may be addressed in a future rulemaking.

10.2 Waste Identification and Point of Generation Issues

Summary of Comments

Two commenters (ASARCO (269-pp.36-38) and Masco (111-pp.3-4)) argued that the proposal contradicts the existing regulations with respect to using dilution to render a characteristic waste nonhazardous. One of the commenters (269) argued that EPA's jurisdiction under RCRA applies only to materials that are hazardous at the point of discard or disposal and that regulation at the point of generation represents an intrusion into the production process. The commenter contended that in many production processes (e.g. mineral processing), process waters from different operations are commingled for management purposes prior to release or recycling or in preparation for eventual wastewater treatment. These mixing practices promote waste minimization and effective waste treatment by reducing waste volume or toxicity, rendering wastes more amenable to treatment, or recycling valuable natural resources. A third commenter (Dow (179-pp.33-35)) maintained that since the inception of RCRA, characteristic hazardous wastes have been regulated differently from listed hazardous wastes. The proposed rule, according to the commenter would erase these differences. In support of its argument, the commenter cited language from a May 19, 1980, preamble stating that EPA knows of no solution to the problem of allowing dilution of characteristic wastes, principally EP toxic wastes, that "does not create major inconsistencies in the way wastes are determined to be hazardous" under the hazardous waste regulations. The commenter argued that industry has built wastewater treatment plants for compliance with the Clean Water Act based on the assumption that a waste that is characteristic hazardous at the point of

generation could be treated in a nonhazardous waste treatment unit if the waste was no longer hazardous at the headworks to the treatment unit. According to the commenter, the rule is in effect saying to industry that all treatment must take place prior to placement in the treatment unit that was built for that purpose. The commenter asserted that this expansion of the definition of hazardous waste is not based on any need to protect human health or the environment.

Agency Response

In the proposed rule, EPA discussed using a point of generation approach for applying land disposal restrictions and provided interpretative language concerning the dilution prohibition contained in 40 CFR 268.3. The Agency acknowledges that the practical effect of these two actions would be to bar dilution as a legal way of managing characteristic hazardous wastes. However, as discussed in detail in the proposal, EPA believes this is within its authority to set RCRA 3004(m) treatment standards, as well as Section 3004(a)(3) authorities. Once a hazardous waste has been generated, the Agency has the authority to mandate how the waste shall be managed if destined for land disposal. The final rule reiterates that a point of generation approach is within the Agency's authority, even if it does alter some currently allowed practices. The essence of land disposal restrictions is that they may require management practices above and beyond previously allowed practices before a waste can be land disposed. This is an authority and a mandate, not a contradiction. The final rule does state that dilution of characteristic wastes in order to remove the characteristic in lieu of meeting the treatment standards is not allowed for toxic wastes. Further, contradictions that might

result in adverse effects due to overlap and disruption of existing CWA and SDWA regulations are minimized by not applying the dilution prohibition to most characteristic wastes.

"Point of generation" as discussed in the proposed and final rules refers to the point of generation of a hazardous waste. In any discussion of point of generation, the issue of when a solid waste becomes a waste (versus an in-process material) is relevant. EPA certainly has jurisdiction under RCRA to regulate wastes before the ultimate point of disposal, or else no treatment processes would be regulated. The Agency did not intend in its proposal to make any new statements about the extensively debated and litigated distinction between wastes and in-process materials.

Summary of Comments

ASARCO (269-pp.36-38) recommended that EPA revise and clarify its regulations to provide that wastes are not subject to RCRA Subtitle C at the point of generation if they are rendered nonhazardous prior to disposal. The commenter added that the aggregation of process waters prior to treatment or disposal should be encouraged.

Agency Response

The commenter is mistaken in its view that wastes are not subject to RCRA Subtitle C at the point of generation if they are rendered nonhazardous prior to disposal. The Agency reiterates its position that it has jurisdiction under RCRA to regulate wastes before the ultimate point of disposal. EPA reminds the commenter that it is the generator's responsibility to determine

which treatment standards must be met and whether wastes are eligible for statutory or regulatory exemptions (e.g., small quantity generators). Once these determinations have been made, the wastes must be managed in accordance with the regulatory framework established by the final rule. See Sections III.E and F of the final rule for a more detailed discussion on the relevance of statutory or regulatory exclusions or exemptions found in Sections 261.2-6 of the LDR program. Finally, if several restricted wastes are generated that are amenable to the same treatment method, then aggregation of these wastes to facilitate legitimate centralized treatment is normally allowed.

Summary of Comments

Monsanto (116-pp.23-25) believed that if the proposal is implemented, the Agency will look downstream from a point of aggregation to ascertain if land disposal occurs and that this determination will affect whether the upstream aggregation was "legal" under EPA rules. The commenter stated that this "forward-looking/backward-looking approach" is so complex that enforcement will be difficult and wide-spread non-compliance will occur. The commenter provided several examples of this complexity:

- The question of impermissible dilution "arises if the treatability group (wastewater/non-wastewater) of the land disposed residue is the same as the treatability group of the original characteristic waste at the point of generation."
- A waste residue derived from a characteristic hazardous aqueous wastestream at the point of generation, which is no longer characteristic after aggregation, must be treated to BDAT before land disposal.
- If derived from residues are land disposed, one test of permissible dilution is "EPA's proposed substantial treatment requirement." However, "if treatment takes place in a Subtitle D impoundment then EPA would now require that the aggregated waste must first be treated to BDAT before it can be placed in the impoundment."

Monsanto strongly believed that EPA should impose neither BDAT requirements for characteristic wastes that are below characteristic levels nor restrictions on the aggregation of characteristic wastes.

Agency Response

This was a thoughtful comment which pointed out certain difficulties involved in applying land ban prohibitions at the point of generation to characteristic wastewaters. The final rule addresses the central elements of this commenter's concerns. Treatment standards in the final rule are either set at or above the characteristic levels (for the most part) or are specified methods of treatment. In all cases dilution is permitted for certain non-toxic ignitable, corrosive, and reactive wastes. Where toxic characteristic wastes are present, application of the dilution prohibition depends on whether the discharges are regulated pursuant to the CWA or the injection wells that are regulated under the SDWA. Dilution of toxic characteristic wastes not regulated under the NPDES, pretreatment or UIC programs, may be permitted when it results from the aggregation of wastes for centralized treatment. Dilution as the sole method of treatment is not acceptable for these wastes. For toxic characteristic wastes disposed of in permitted deep wells, the Agency is not specifying treatment methods and the dilution prohibition does not apply. However, as explained in the rule, the Agency is requiring specified methods and applying the dilution prohibition in those instances where the specified methods are required for the CWA program. The Agency believes that this is consistent with and promotes the goals and objectives of the CWA.

Summary of Comments

Air Products (169-p.2) stated that the proposed rule creates a conflict between EPA's point of generation policy and previous EPA policies concerning the aggregation of wastestreams for centralized treatment. Additionally, the proposed rule creates conflicts between previous EPA policy on the legitimate use of permissible dilution to achieve a characteristic level and the proposed BDAT treatment standards requiring specific treatment methods.

For example, a waste that is an ignitable liquid at the point of discharge to a centralized treatment facility, but that subsequently becomes non-ignitable when mixed with other wastes, would nevertheless become subject to the proposed BDAT standard for ignitable characteristic hazardous waste under EPA's policy of applying BDAT at the point of generation. The proposed treatment standard requires a specific method: incineration or recovery. Under EPA's point of generation policy, the ignitable liquid would have to be segregated for incineration or recovery. However, because the centralized treatment system effectively removes the characteristic from this waste, the treatment system involves legitimate treatment, not impermissible dilution. This is reinforced by EPA's statement that:

Aggregation of wastestreams for centralized treatment is not considered to be a form of impermissible dilution; it is a form of mixing that facilitates treatment. (52 FR 25766).

EPA further reinforces the argument that it did not intend that any of its land disposal restriction policies interfere with centralized treatment:

The Agency also wished to ensure that any determination scheme not interfere with, or discourage legitimate centralized treatment. . . . Under these circumstances, EPA

does not see that a point of generation approach would require alteration of legitimate centralized treatment practices, or force unwarranted batch treatment. The Agency sees no reason to alter its existing approach. (52 FR 25766)

These EPA statements regarding the legitimacy of dilution and centralized treatment as an acceptable means of treating characteristic hazardous wastes appear to conflict with the point of generation approach adopted in the proposed rule and with the setting of BDAT standards as a required treatment method, rather than a level, for certain characteristic wastes. The combined effects of EPA's point of generation policy and proposed treatment below characteristic level policy would require alteration of centralized treatment or unwarranted batch treatment.

Setting the treatment level at the characteristic level, rather than requiring a specific method (e.g., incineration or recovery), would prevent this conflict because any form of legitimate centralized treatment would eliminate the hazardous characteristic. Air Products strongly recommended that EPA set the treatment level at the characteristic level for all characteristic wastes by designating BDAT as "Treatment Until Nonhazardous."

A second commenter (National Paint & Coatings Association (158-p.2) expressed similar concerns.

Agency Response

The commenter's specific concern is addressed by creating a high TOC ignitable waste treatability group. This wastestream should be segregated; it does not belong in a wastewater treatment system and residues from treating most ignitable wastes will not require incineration.

More generally, EPA does not see any inherent inconsistency in the proposed point of generation approach and the proposed dilution rules for centralized treatment. As noted in the proposed rule, dilution for purposes of centralized treatment may be permissible in certain situations. Such dilution, however, even if to below characteristic levels, does not make a required BDAT standard expressed as a method of treatment inapplicable. Except when regulated under the UIC program, the waste must still be treated by the required technology, not by any form of treatment. Alternatively the owner or operator may submit an equivalent treatment method petition.

Regardless of any inherent inconsistency, EPA has significantly modified the proposal in ways that reduce the tensions between the dilution rules for centralized treatment and the BDAT standards. For example, under the final rule, dilution is considered an acceptable method of treatment for most characteristic wastes (i.e., certain ignitable, corrosive or reactive wastes)non-toxic wastes).

As a result of these changes, non-toxic characteristic wastes can be legitimately diluted prior to or during centralized treatment. Once these wastes are treated (e.g., diluted) to be below the characteristic level, they are not subject to the LDRs prohibitions, although they are still subject to the Part 268 recordkeeping requirements as described in Section III.F of the final rule.

As stated in previous responses, dilution of characteristic toxic wastes for centralized treatment is permissible if all the aggregated wastes are legitimately amenable to the same type of treatment and this type of treatment is utilized. For example, aggregation of organic-containing wastes suitable for combustion is legitimate. In contrast, aggregation of high TOC ignitable wastes with ignitable wastewaters for centralized biological treatment is not

permissible because biological treatment is not appropriate for high TOC ignitable wastes.

EPA is unable to quantify across-the-board what types of treatment are appropriate for particular characteristic wastes. Clearly, units would have to conduct some treatment, that is removing toxicity or mobility of BDAT constituents. In addition, the treatment units must treat wastes that are amenable to treatment in that type of unit or are appropriately combined. A clear objective indication that treatment is appropriate is that it is the same type of treatment that is was the basis for a treatment standard. Other methods may also be acceptable.

Summary of Comments

One commenter (Morton (181-p.2)) asserted that the Agency must recognize the distinction between wastewater and non-wastewater waste forms. The commenter argued that complex industrial facilities are not designed to treat wastewater at the point of origin. The commenter urged the Agency to permit aggregation of wastes that go to a common treatment system specifically designed to handle those types of wastes.

Agency Response

The Agency promulgates separate treatment standards for wastewater and non-wastewater wastes. As for aggregation, as explained in more detail in previous responses, the Agency is not applying the dilution prohibition to characteristic wastes managed in treatment systems subject to the CWA. The

final rule, in general, allows aggregation for hazardous wastes amenable to the same type of treatment.

Summary of Comments

One commenter (Amoco (240-pp.3,6-7)) argued that EPA's unexplained references to the point of generation increase the confusion over the dilution issue. EPA's proposed rule, the commenter concluded, would negate the need for existing wastewater treatment facilities and, in conjunction with the upcoming toxicity characteristic rulemaking, "would spread chaos throughout the industry."

Agency Response

Discussion of the "point of generation" issue, while complicated, is fundamentally related to the dilution issue and other important land disposal restrictions issues. The Agency reminds the commenter that the "point of generation" is not a new concept and was discussed in the California List rule.

With respect to those which the treatment standard is specified as a method, the wastes would be considered prohibited at the point of generation, with the further consequence that they would require treatment using such methods. Likewise, where EPA has established performance level as the treatment standard, waste would have to be treated until they meet that standard. (52 FR 25767)

As discussed in detail in previous responses, the Agency recognizes that this rule could have far-reaching implications for existing wastewater treatment systems. To address this the Agency has decided ordinarily (1) not

to apply the dilution prohibition for characteristic wastes managed in wastewater treatment systems subject to CWA or UIC, and (2) to allow aggregation of wastes amenable to the same type of treatment.

Summary of Comments

Ford (180-pp.3-5) argued that because the mixture rule applies only to mixtures, similar waste types generated on an infrequent or small-scale basis for disposal are commonly aggregated for disposal. The commenter stated that since 40 CFR Part 261 now permits this practice, waste characterizations are ordinarily performed prior to disposal of a particular wastestream rather than at the point of generation. The commenter believed that EPA's proposal that any dilution that does not occur as a necessary part of the treatment process is impermissible conflicts with the existing regulations under Part 261 and will cause confusion in the regulated community. The commenter also believed that under the proposal many nonhazardous waste disposal facilities would be unwilling to accept any wastestream that potentially could have been mixed with a characteristic waste subject to a treatment standard.

The commenter responded to EPA's request for examples of legitimate aggregation for centralized treatment. The commenter's example was a facility that performs maintenance painting of equipment, floor stripes, guard rails, etc., and generates small amounts of several different paint wastes. Some paint wastes are EP toxic for different metal constituents. If these wastes cannot be mixed or diluted, the facility must use more containers to manage its wastes and would incur additional analytical and waste management costs.

Ford objected to EPA's proposed requirement to characterize and apply specified treatment standards for each individual wastewater source that

enters a wastewater treatment system. Previously the automotive industry has relied upon end-of-pipe wastewater treatment of all combined process wastes. EPA regulates these activities under the Clean Water Act; discharges from wastewater treatment plants are not solid wastes under 40 CFR 261.4(a)(2). The commenter claimed that EPA has now determined that these practices constitute impermissible dilution and that the resulting wastewater treatment sludge is subject to the applicable treatment standards for all of the individual and discrete process discharges into the wastewater treatment system. The commenter noted that these systems were specifically designed and installed to treat these constituents or adjust pH prior to discharge.

Finally, the commenter believed that the toxicity and mobility of any treated waste should be about the same whether the waste is treated separately or in conjunction with other wastes.

Agency Response

The determination whether or not a waste is hazardous is made at the point in time when a waste first exists -- that is, at the point of generation. The hazardous waste regulations make an important distinction between listed and characteristic wastes. As the commenter recognizes, the mixture rule (40 CFR 261.3(a)(2)(iv)) establishes the principle that listed wastes remain hazardous until delisted, even when mixed with other solid wastes. However, wastes that are hazardous solely because they exhibit a characteristic are no longer hazardous if they cease to exhibit the characteristic. In some cases, wastes may cease to exhibit a characteristic after mixing.

While it is clear that the determination whether a waste is hazardous is made at the point of generation, a point of generation approach is more complicated in the application of specific regulatory requirements (e.g., the land disposal restrictions). The Agency has previously adopted a point of generation approach in the application of such regulations and interpretations as the California list standards (see 52 FR 25760), the waste code carry-through principle (see 54 FR 26605), and land disposal tracking requirements (see 54 FR 36968). The Agency believes it has authority under RCRA to fulfill the goals of the land disposal restriction program (specifically 3004(m) treatment standards) by applying treatment standards at the point of generation and holding individual wastes subject to the treatment standards regardless of subsequent mixing or reductions in concentration. However, after carefully considering comments and studying potential ramifications of the proposal, EPA recognizes that there are many far-reaching policy considerations associated with the point of generation approach as applied to land disposal restrictions for characteristic wastes. Importantly, the Agency carries the mandate and authority under RCRA Section 1006(b) to integrate provisions of RCRA and avoid duplication with CWA programs.

In the final rule, EPA does not, in most cases, apply a dilution prohibition to characteristic wastes that are managed in CWA treatment systems or disposed of in SDWA wells. The Agency has not necessarily determined that the practices described by the commenter constitute impermissible dilution. The commenter should refer to the preamble of the final rule for detailed discussion of the Agency's revised position on the interpretation and application of the dilution prohibition.

In the example provided by the commenter, the various EP toxic streams aggregated for treatment in an NPDES treatment system would not be subject to

a dilution prohibition. Even if the wastes were listed, the treatment would be legitimate if the treatment method were a legitimate means of treating metal-containing wastes.

10.3 Dilution Rule and Characteristic Wastes

10.3.1 General Issues

Summary of Comments

Many commenters opposed application of the dilution rule to characteristic wastes. Several commenters (Westinghouse 167-pp.6-7), American Petroleum Institute (168-p.78-87), Rhone-Poulenc (207-p.9), and Browning-Ferris (214-pp.17-25)) argued that EPA's existing rule is reasonable and sufficient to prevent illegitimate dilution. Other commenters (Phillips (080-pp.2-5) and BP America (098-pp.1,6-9)) noted that wastestreams, which may be characteristic hazardous at the point of generation, are combined with other wastestreams to facilitate treatment, not to circumvent treatment by dilution. Other commenters (Westinghouse (167-pp.6-7), Department of Energy (198-pp.21-23), Precious Metals Producers (203-pp.9-10), and Utilities Solid Waste Activities Group (204-pp.17-19)) claimed that it was not unusual for production processes to generate wastestreams with extreme pH values, or for those wastes to be mixed with plant wastewater to render them nonhazardous. Two of these commenters (198 and 204) joined by Air Products (169-pp.3-4) and Monsanto (116-pp.23-25) further asserted that after aggregation these waste are no longer hazardous and should not be subject to Subtitle C regulation. One commenter (116) believed that EPA's proposal radically departs from the present RCRA classification rules. Another commenter (ICWM (164-p.7) stated that requiring industry to further adjust the pH of blended effluents would impose significant burdens on firms for managing materials that are not RCRA hazardous waste

Another commenter (ARCO (193-p.1)) stated that in the preamble to the November 22, 1989, proposed rule the Agency recognized that the rules that identify a hazardous waste "'do not prohibit dilution to remove a hazardous waste characteristic or to achieve a delisting level.'" See Sections 261.3(d)(1) and 260.22(c) and (d)." (54 FR 48495). If a characteristic hazardous waste does not exhibit a characteristic, it is no longer a RCRA regulated hazardous waste (40 CFR 261.3(d)(1). To the extent that the Agency does not prohibit dilution for purposes of eliminating hazardous waste characteristics, the Agency cannot require treatment beyond characteristic levels where dilution already has eliminated the characteristic. The commenter stated that if a characteristic waste ceases to exhibit a characteristic through dilution, it fails to meet the first jurisdictional prerequisite for applicability of the land disposal restrictions, i.e., that the waste is hazardous waste within the RCRA regulatory scheme.

Agency Response

First, most of the above concerns deal with corrosive wastes. EPA is finding that removal of the characteristic by any means is legitimate. More generally, in developing both the proposed rule and the final rule, EPA has sought to clarify the existing dilution prohibition contained 40 CFR 268.3. Specifically, it is necessary to identify how the language of the dilution prohibition will be applied to characteristic wastes. The Agency agrees that many wastes are combined to facilitate treatment. In the final rule, the Agency states that dilution of characteristic wastes is not permissible if it is done for the purpose of circumventing the required treatment standards. Many wastes, however, are mixed or diluted as part of a legitimate treatment

system -- this is permissible dilution as interpreted in the final rule. The final rule also states that dilution is an acceptable method of removing the hazardous characteristics of certain ignitable, reactive, and corrosive wastes.

The Agency does believe that the proposed rule was a departure from the hazardous waste regulations set forth in 40 CFR Part 261. The proposed rule did, however, present the construction that RCRA Section 3004(m) treatment standards remain in effect from the point of generation until applicable treatment standards are met, regardless of how subsequent concentrations compare to characteristic levels.

Summary of Comments

The Synthetic Organic Manufacturers Association (108-pp.20-27) maintained that EPA's proposal contains little practical guidance on the precise scope of permissible dilution and will result in confusion and uncertainty among the regulated community. Enforcement will become arbitrary, and many small business may abandon a potentially permissible and cost-effective waste management technology because they are unable to assess its legality.

The commenter recommended that EPA delete the anti-dilution provisions as they apply to characteristic wastes. In support of their argument, the commenter made the following points:

- If generators are required to test wastestreams before aggregation, streams that may not have been considered

hazardous waste in the past may now be subject to Subtitle C regulation.

- Only those generators that completely segregate their wastestreams will be unaffected by the proposal. Previous EPA policy, as stated in the preamble to the California list rules, permitted aggregation of wastestreams for centralized treatment.
- If the proposal is implemented, generators will be required to re-examine each of their wastestreams to determine if aggregation constitutes permissible dilution. This task alone would pose difficulties for many generators, and that reconfiguring treatment systems by May 1990 would be virtually impossible.
- The proposal will create greater inconsistency in the regulation of comparable waste management practices. Examples are provided to demonstrate some of the nonsensical and disparate results on existing facilities.

The commenter stated that the proposal departs from past EPA policy which differentiated characteristic wastes from listed wastes in terms of dilution approaches. The commenter argued that even if EPA finds "merit in across-the board de minimis for all categories of wastes," EPA must address that issue through a separate rulemaking.

Agency Response

The issues raised by the commenter have been addressed in the final rule. Most of the potential problems, as the commenter notes, involve wastewater treatment systems. EPA is not applying a dilution rule to characteristic wastewaters to avoid these potential problems. Furthermore, dilution that occurs during aggregation of wastes for centralized treatment is allowed. Moreover, dilution for certain non-toxic characteristic wastes can be used as an acceptable method for removing the hazardous characteristic. EPA also is indicating more specifically in the preamble which practices it considers impermissible dilution.

Summary of Comments

The Environmental Defense Fund (125), while commending some of EPA's interpretations, viewed EPA's approach completely unsatisfactory because even though the act of dilution to circumvent LDRs would be illegal, neither the dilute waste nor the disposal unit receiving the waste would be subject to hazardous waste regulation. EDF contended that the Agency would be rewarding violators by reducing regulatory control over the product of an illegal act. The commenter attributed this approach, to the Agency's inexplicable reluctance to prohibit dilution of characteristic wastes as a means of rendering these wastes nonhazardous.

The commenter declared that there is no legitimate policy basis for permitting the regulated community to dilute wastes for the purpose of avoiding hazardous waste regulation because dilution is not a valid treatment technique. The commenter argued that a substantial number of States prohibit

the deliberate mixing of wastes to change their regulatory status and suggested that EPA adopt a similar approach.

Agency Response

Impermissible dilution is a violation of EPA rules that state that prohibited wastes cannot be diluted in order to circumvent a statutory or regulatory prohibition or effective date. Impermissible dilution is illegal and punishable by fines, injunctive relief, and other penalties. In its original proposal and in the final rule, EPA clarified its definitions of permissible and impermissible dilution; the clarifications all hinge upon the implementation of 3004(m) treatment standards and are limited to the context of land disposal prohibitions.

The Agency is not changing or re-interpreting the rules implementing RCRA Section 3001 that define hazardous waste. Quite frankly, EPA has had enough to do in this rulemaking without taking an enormous effort to amend fundamental Part 261 rules. Certainly the commenter has not considered in their comments the implications for permitting, interim status, authorization, recosting effluent guidelines, treatment capacity if the Section 3001 rules are changed.

The commenter is correct in stating that EPA historically has not prohibited dilution as a means of rendering characteristic wastes nonhazardous. However, this approach has not been and is not "inexplicable reluctance." EPA's approach has been grounded in the following principle: since characteristic wastes are automatically defined as hazardous, solely because they exhibit a specified property, they may cease to be managed as hazardous when they no longer exhibit the property. As stated in the final

rule, EPA believes that the mixing of wastestreams to eliminate characteristics is appropriate for wastes that are purely corrosive, and for certain ignitable and reactive wastes. These are properties which can be effectively removed by mixing. On the other hand, EPA acknowledges that simple mixing is not effective treatment for toxic characteristic wastes because dilution does not remove toxic constituents. EPA may address this situation more fully in other rulemakings.

In summary, in this final rule EPA is not promulgating changes to its existing definition of hazardous waste. Impermissible dilution is illegal and punishable. However, waste management units that do not receive any hazardous waste (e.g., that receive a formerly hazardous characteristic waste which no longer exhibits any characteristic) will not be treated as Subtitle C unit.

Summary of Comments

The Gulf Coast Waste Disposal Authority (151-pp.5-6) stated that EPA's proposal presents special problems for industrial wastewater treatment facilities. When the proposed treatment standards are combined with the Agency's proposed strict dilution prohibition for characteristic wastes, the resulting management requirements for characteristic wastes will cause immense operational and economic difficulties on regional TSDFs, especially facilities that treat a multiplicity of wastes. The situation will be particularly difficult for wastewater treatment facilities when the Agency promulgates the revised toxicity characteristic, many existing wastewater treatment systems will be rendered unusable.

The commenter operates regional TSDFs, including wastewater treatment facilities. The commenter's customers have been planning and implementing

controls to assure that their combined wastewaters, at the headworks to the commenter's treatment system, will not exceed any of the proposed characteristic levels. Based on EPA's proposal, however, these plants will have to identify every single wastewater source that may, at some moment in time, exceed a characteristic level. These wastes would have to be collected and treated to the BDAT levels before they could be discharged to the central process sewer.

It is not apparent to the commenter or its customers that this approach is technically feasible. Identifying, collecting, and treating individual wastestreams, and even combining those for which the mixing would not be prohibited dilution, is a daunting technical task and certainly could not be completed within the time frame allowed by the proposed rule. EPA's approach, in effect, requires a complete reversal of standard industrial wastewater treatment design philosophy developed over many years, i.e., the combination of wastes with complementary characteristics and treatabilities to maximize cost-effective removal of pollutants in large treatment units.

The commenter continued to state that requiring segregation and separate treatment of these characteristic wastes would not provide any significant additional protection of human health and the environment. The existing treatment systems are designed and operated to remove the hazardous characteristics and hazardous constituents from these wastes, and do so very effectively (the average effluent concentrations of organic constituents, for example, are below the detection limits). The effluents and residues from these treatment units are managed carefully and already provide a high level of protection to human health and the environment.

The commenter's regional wastewater treatment facilities manage wastewaters from plants within the organic chemicals and related industries.

These plants may each have several processes and dozens, or even hundreds, of wastewater sources that are collected in a central process sewer system and sent to the commenter's facilities for treatment. Many of these wastewater streams are small in volume; some exhibit the characteristics of ignitability, corrosivity, or EP toxicity. When combined with other wastewaters, these streams lose these characteristics and are effectively treated in the commenter's facilities. EPA's current policy on characteristic wastes has unambiguously provided that when a characteristic waste mixes with other solid waste and the mixture is no longer hazardous by characteristic, the waste is no longer regulated under Subtitle C (40 CFR. 261.3(A)(2)(iii)). Based on the commenter's reading of the proposed rule, such aggregation would probably be classified as prohibited dilution, if the combined wastewaters were stored or treated in a Subtitle D impoundment. This complete reversal of policy will cause havoc among regional TSDFs and their customers, since millions of dollars have been spent on treatment facilities that are designed and operated to take advantage of the very aggregation of wastes that EPA now proposes to prohibit.

A second commenter (National Paint & Coatings Association (158-p.2) expressed similar concerns.

Agency Response

EPA agrees with the commenter that the proposed rules for characteristic hazardous wastes would have created havoc for industrial wastewater treatment systems. As a result of these problems, EPA has modified the dilution rule. EPA believes that these modifications make the final rule feasible to

implement and enforce without serious difficulties or disruption of legitimate wastewater treatment activities.

For characteristic wastes disposed of in permitted deep wells, the Agency is not specifying treatment methods, and the dilution prohibition does not apply. However, as explained in the rule, the Agency is requiring specified methods and applying the dilution prohibition and requiring the use of specified methods, since the Agency believes this is consistent with and promotes the goals and objectives of the CWA.

EPA is not convinced that requiring segregation and separate treatment of formerly characteristic wastes managed under the Clean Water Act would not provide any significant additional protection of human health and the environment in selected situations. Identifying and specifically regulating those situations, however, would require detailed regulatory and technical analysis. Thus, EPA has concluded that the potential benefits of integrating the RCRA LDRs with CWA programs does not appear significant enough at this time to warrant the development of a detailed approach to integration. EPA notes further the commenter's assertion that only "complementary" wastes are aggregated for treatment. If this is correct, this is the same basic principle EPA is enunciating in the final rule.

Summary of Comments

The American Petroleum Institute (168-pp.78-87) supported EPA's position that a formerly characteristic hazardous waste which no longer exhibits a characteristic need not be managed as hazardous and that a unit receiving such a waste is not considered a hazardous waste management unit. The commenter, however, noted that diluting the waste to make it nonhazardous would be

prohibited by the proposal. The commenter noted that in the January 11, 1989, advance notice on characteristic waste treatment standards, EPA itself acknowledged that dilution is a legally permissible way to manage certain characteristic hazardous wastes. Further if the Agency's broad construction is necessary to prevent dilution in lieu of treatment, EPA should explain why this never occurred to the Agency prior to this proposal. Moreover, EPA's desire to prevent impermissible dilution can and should be addressed more directly under the proper authority, as noted in the comment above, rather than by seeking to expand the scope of Section 3004(m).

The commenter maintained that petroleum facilities commonly aggregate wastewaters, some of which may be characteristically hazardous, to achieve more efficient treatment and not to evade the land ban. For example, a refinery may combine oil/water separator sludge with DAF float and treat the mixture by incineration. The commenter stated that these wastes are substantially similar in form and constituent make-up and subject to nearly identical treatment standards. The commenter claimed that this practice could be deemed illegal if the concentration levels of the DAF waste are lower than that of the separator sludge because the resulting mixture would constitute dilution of the separator sludge.

API also believed that the proposal could threaten regulatory exemptions that have been long in place. The commenter asserted the proposal could reverse EPA's policy of exempting from the "mixture rule," the commingling of small quantities of certain hazardous wastes with large volumes of nonhazardous wastewater, where the mixture was destined for treatment in a plant's wastewater treatment system.

The commenter argued that dilution of certain ignitable, corrosive, and reactive characteristic wastes can reduce the risks to plant personnel from exposure during transport of such wastes prior to treatment.

The commenter argued against the requirement to remove or immobilize a BDAT constituent claiming that it would be counterproductive. The commenter proposed that at a minimum, the Agency should clarify that the term "constituent" includes the characteristics of corrosivity, reactivity, and ignitability.

API also asserted that in many cases reduction in toxicity or mobility will be required for more than one constituent. According to the commenter, because EPA has not set any specific criteria for what would be considered permissible in such cases, compliance will be difficult and confusion in the regulated community will abound. The commenter suggested that if EPA believes that there is a potential loophole in the existing program, then the Agency should promulgate factors which could be applied to a particular case to determine whether an act of dilution is legitimate. The commenter suggested such a list factors:

- Whether the practice predates the land disposal ban program;
- The degree to which efficiency in waste management is promoted;
- How far upstream in the waste management process the mixing takes place;
- Whether all components of the mixture require treatment and are destined for further treatment;
- Whether one component of the mixture contributes to the treatment of the other;

- The quantities of the wastes being mixed; and
- Whether following final treatment, mass loadings of pollutants are reduced.

API urged EPA to maintain flexibility so that it can achieve its stated goals while permitting environmentally sound and practical waste management practices.

Agency Response

This is a thoughtful comment. The issues raised by the commenter have been for the most part addressed in the final rule. The Agency has modified the proposed rule, for example, to allow aggregation of compatible wastes prior to treatment. The Agency concurs that such mixing is to increase efficiency rather than avoid treatment. Furthermore, the Agency is no longer prohibiting dilution of characteristic wastes to facilitate transport and handling of those wastes. The Agency believes that the final rule is sufficiently stringent to eliminate regulatory loopholes while retaining enough flexibility to allow generators to treat their wastes in an appropriate but efficient manner.

In answer to specific points, EPA's approach to dilution in this rule is not new. Section 268.3 has always applied to prohibited wastes, and EPA has never said that it would not apply to characteristic wastes. The legislative history to the LDR provisions likewise states that toxic wastes should be treated, not diluted. The language applies to toxic characteristic wastes. The commenter's examples involving ignitable, corrosive, and reactive wastes

would not involve impermissible dilution, nor would aggregating DAF float and API separator sludge.

Summary of Comments

Nortru (241-pp.2,10-13) commended EPA's efforts to eliminate regulatory loopholes that would allow generators to circumvent the land disposal restrictions by diluting characteristic wastes with nonhazardous wastes and rendering the entire wastestream nonhazardous. The commenter, however, suggested that EPA extend the proposed rules to achieve what the commenter regards as the full intent of RCRA Section 3004 -- guaranteeing the elimination of all "unnecessary" dilution.

EPA has suggested that penalties, such as fines or injunctive relief, be applied for impermissible dilution of characteristic wastes. The commenter argued that the proposed rules should be extended beyond penalizing facilities to ensure that impermissible dilution ceases. All dilution, the commenter said, should be considered impermissible unless it results from properly treating all components of the waste and is handled under a hazardous waste management treatment permit. The commenter argued that there are economic incentives which make it beneficial to misclassify wastes or sidestep the proposed regulations by the dilution loophole and that the penalties proposed by EPA are unlikely to overcome the economic benefits of landfilling. The commenter believes that economics will always favor landfilling over alternative technologies, particularly when on-site landfill capacity is available. The commenter insisted that "unnecessary landfilling" would continue and that other firms which currently pay an economic penalty to use

alternative technologies will reevaluate their practices unless the Agency gives clear regulatory direction to facilities.

Agency Response

The Agency believes that implementation of the commenter's proposals would severely disrupt a large number of existing wastewater treatment systems that are environmentally sound, create a significant overlap between the LDR program and other EPA programs, and would make the LDR program difficult to enforce. The Agency has developed a final rule which in its view closes regulatory loopholes, prohibits dilution which does not significantly remove or eliminate a hazardous characteristic, and maintains enforceability. The final rule contains adequate safeguards to preclude hazardous waste generators from using sham treatment in order to avoid the LDR requirements and prohibitions.

10.3.2 D001 Wastes

Summary of Comments

Hoechst-Celanese (L010-pp.1-2) asserted that dilution of non-toxic characteristic hazardous wastes or wastes listed because of a non-toxic characteristic is appropriate. As an example of such wastes, the commenter cited ignitable liquids that are hazardous solely on the basis of their ignitability. These substances may generally be diluted as a part of aggregation for centralized treatment, or in order to bring them to the point where they are no longer ignitable.

The commenter pointed out that, in some situations, a spill may necessitate removal of an ignitable organic from a facility work area by flushing it into the process sewer system. Water soluble ignitable organics may be diluted in this manner until they no longer exhibit the ignitable characteristic. Non-water soluble ignitable organics may be flushed in order to move them to an area where ignitability can be controlled. The commenter asserted that EPA's proposed rule would prevent dilution even for these purposes, jeopardizing the integrity of the facility and the safety of employees, and possibly causing a catastrophe. On the other hand, allowing such dilution would minimize threats to health and the environment.

Agency Response

The issues raised by the commenter have been addressed by the Agency in the final rule. EPA agrees that dilution of most non-toxic characteristic hazardous wastes is an acceptable form of treatment. For these types of

wastes, the Agency is emphasizing the removal of the hazardous characteristic, not the means by which the characteristic is removed.

Summary of Comments

Union Carbide (190-pp.3-9) described how an anaerobic treatment system at one facility would be disrupted because the ignitable wastestreams now used to act as a hydrogen donor in the anaerobic process would have to be replaced. The commenter further noted that while the proposal's requirements will be in effect on May 8, 1990, the revamping of existing systems could take up to three years to complete. The commenter also asserted that these expensive changes will be made without achieving any environmental benefits.

Agency Response

The Agency has decided not to prohibit dilution used to aggregate wastes for centralized treatment or for treatment of certain ignitable, corrosive, or reactive wastes. The Agency has provided guidance in the comment response and the final rule to assist treaters determine when specific examples of dilution might be impermissible.

10.3.3 D002 Wastes

Summary of Comments

Union Carbide (190-pp.3-9) claimed that if the dilution prohibition were implemented, one of its facilities would have to neutralize over 225 million

pounds of wastewater per year at great expense, and the amount of sludge disposed in landfills or the amount of insoluble salts discharged to receiving waters would increase significantly.

Agency Response

The problems envisaged by the commenter should not materialize given the modifications to the dilution prohibition contained in the final rule.

Summary of Comments

The University of Illinois (139-p.3) agreed with EPA's position that dilution is necessary for some treatment procedures, such as neutralization of acids. The commenter agreed that dilution should be discouraged in most cases, but encouraged EPA to allow dilution in those cases where it is appropriate.

Agency Response

EPA has constructed interpretations that allow dilution where appropriate, but prohibits dilution that is for the purpose of circumventing land disposal restrictions treatment standards. Situations in which dilution may be appropriate include dilution to remove non-toxic hazardous waste properties, to aggregate characteristic wastes amenable to the same type of treatment, and to treat wastewaters in systems regulated under the CWA and SDWA.

Summary of Comments

Precious Metals Producers (203-pp.9-10) expressed concern that EPA's proposal on dilution does not take into account existing treatment methods which are effective and protective of the environment. The commenter argued that precious metals producers dispose of small amounts of acid wastes with large volumes of base/neutral tailings. According the commenter, the acid wastes are neutralized and prevented from escaping into the environment by the tailings. The commenter stated that this method of treatment has the following advantages:

- No treatment chemicals are needed, thus reducing worker exposure;
- Conservation of resources is achieved; and
- The wastes are neutralized without posing additional risks to the environment.

The commenter maintained that this treatment method differs from the scenarios EPA provided in the proposal and requests that EPA adopt a rule which recognizes the availability of such treatment options.

Agency Response

The Agency is permitting generators to mix non-toxic characteristic wastes to achieve neutralization. Dilution of a small volume of acidic wastes with a large volume of neutral of basic wastes removes the hazard

characteristic, and the Agency has determined this is an acceptable form of treatment for this type of wastestream.

Summary of Comments

Dow (179-pp.33-35) argued that dilution should continue to be an allowable method to handle characteristic hazardous wastes, particularly non-EP toxic characteristics such as corrosivity. The commenter suggested that if the characteristic levels are set at the wrong level, EPA should rectify that situation in another rule, not in the LDR program. The commenter claimed that the dilution proposal would require drastic and costly changes in wastewater treatment facilities, causing more environmental harm than would be prevented. The commenter also suggested that EPA allow "dilution" that occurs in the normal operation of an NPDES wastewater treatment plant.

Agency Response

The Agency agrees with the commenter that dilution can be an appropriate method of treatment in the case of non-toxic characteristic hazardous wastes. In light of the comments received, and based on further assessment, the Agency has determined that for these types of characteristic wastes it should not matter how the characteristic property is removed, as long as it is removed. This, however, does not apply to toxic characteristic wastes. Dilution of a characteristic waste containing a constituent for which there is a BDAT treatment standard is not an acceptable form of treatment. Such wastes, if they are compatible, however, can be commingled prior to treatment, even if dilution occurs.

Summary of Comments

Browning-Ferris (214-pp.17-35), Allied-Signal (267-pp.6,28-34,38-45), and the National Council of the Paper Industry for Air and Stream Improvement (243-pp.3-4)) expressed doubts on whether the dilution concept "has any relevance to pH corrosive wastes at all." The commenter disagreed with EPA's assertion that dilution simply creates larger volumes of wastes but does not treat or remove hazardous constituents. The commenters further objected to EPA's argument that neutralization is more conservative of natural resources and more protective of aquatic ecosystems. The commenters supported its position with the following arguments:

- The characteristic of pH corrosivity arises from the imbalance between hydronium and hydroxide ions and the mixing of wastewaters effectively destroys this hazardous characteristic; thus, the process should be considered treatment.
- EPA's example demonstrating that extremely large volumes of pure water are needed to neutralize an acidic material whereas only a small quantity of chemical additives are required to achieve the same result is not realistic. Treatment by dilution will only occur at facilities mixing various wastewater streams, and not by the use of water not already used by the facility for other purposes.

The commenters concluded that the concept of impermissible dilution has no place in the context of pH corrosive streams, and that the Agency should define treatment to include the mixing of an acidic corrosive waste with any wastewater that has measurable alkalinity, and the mixing of an alkaline corrosive waste with any wastewater that has measurable acidity. One commenter (267) asserted that both the treatment standards and the "impermissible" dilution concept are arbitrary, technically unsupported, and technically infeasible.

Agency Response

The concerns expressed by the commenters relating to non-toxic characteristic wastes have been fully addressed in the final rule. The Agency is no longer prohibiting dilution of these wastes in order to remove the characteristic. The Agency strongly disagrees with the view that either the treatment standards or the impermissible dilution concept is arbitrary, technically unsupported, or technically infeasible. The Agency has detailed in both the proposed rule and final rules its reasons for establishing specific standards and imposing the dilution prohibition on certain hazardous wastes.

10.3.4 D003 Wastes

Summary of Comments

Explosives Technologies International (235-pp.2-3) objected to the application of the dilution rule to D003 wastes. The commenter asserted that the justifications EPA used to prohibit dilution including reactivity to water and presence of cyanides or sulfide do not apply to D003 wastes. The commenter recommended that dilution be automatically included for D003 explosives.

Agency Response

EPA is not prohibiting dilution as a means of treating non-toxic reactive wastes.

Summary of Comments

ETICAM (270-p.3) recommended that EPA exempt reactive wastes and highly concentrated acids and caustics from the dilution prohibition. The treatment of cyanides, sulfides, acids, and caustics often requires significant dilution for safe handling. The commenter claimed that attempting to treat these substances undiluted could pose a significant risk to life and the environment from possible runaway exothermic reactions. The commenter stated that there are many incidences of such explosive reactions that are not documented or are currently under litigation. Through laboratory studies, the commenter has

found that volumes as small as 100 ml of sample can be risky to treat in a lab hood setting.

Agency Response

The Agency agrees that dilution can be an appropriate form of treatment for certain non-toxic corrosive, reactive, and ignitable wastes. As the commenter has pointed out, dilution of certain ignitable wastes can actually reduce risks from explosions. This is one of the reasons why the Agency has modified the dilution prohibition for these types of wastes. The Agency notes, however, that reactive sulfides and cyanides are considered to be toxic characteristic wastes, and hence dilution as the sole method of treatment is not acceptable.

10.3.5 EP Toxic and Other Characteristic Wastes

Summary of Comments

The Utilities Solid Waste Activities Group (204-pp.17-19) urged EPA to reaffirm in the final rule that the prohibition on dilution applies only to wastes that are themselves destined for land disposal. Characteristic wastes which are managed by some method other than land disposal are not subject to either the treatment standards or the prohibition against dilution. The commenter stated, for example, that an organic waste that exhibits a characteristic and is burned for energy recovery is not destined for land disposal. In the commenter's view, mixing this waste with other organic materials would not be impermissible dilution. The commenter also asserted

that aggregating wastewaters that are eventually discharged through a NPDES permit should be permitted, because the mixtures are not destined for land disposal. Furthermore, according to the commenter, any solids generated during treatment should not be subject to land disposal restriction unless the residue itself exhibited a characteristic.

Agency Response

The Agency agrees with the commenter's view that LDR prohibitions apply only to wastes that are land disposed. Dilution used to avoid land disposal and thus the LDR prohibitions, however, is not permitted. Accordingly, the commenter is correct, for example, in noting that the mixing of organic wastes prior to combustion is permissible. The practice is acceptable for two reasons: 1) it entails the commingling of compatible wastes prior to appropriate treatment; and 2) the sole purpose of this approach is to achieve greater efficiency of treatment, not to avoid land disposal. This principle does not apply, however, to the practice of diluting listed hazardous non-wastewater with wastewater so that the resulting mixture is classified as "wastewater" and thus not land disposed. The ostensible purpose of this practice is to avoid appropriate treatment and thus is prohibited. The Agency further notes that, in general, residuals generated from the treatment of characteristic hazardous waste are not automatically considered characteristic wastes; these wastes are considered characteristic wastes if they still exhibit the original characteristic or if they exhibit another characteristic.

Summary of Comments

Browning-Ferris (214-pp.17-25) believed that while the existing prohibition of dilution is amply justified, the proposed extension of the land disposal regulations to cover characteristic wastes could be unenforceable. The commenter urged EPA to clarify the meaning of impermissible dilution to enable facilities and EPA itself to distinguish between dilution and treatment.

The commenter joined by Allied-Signal (267-pp.6,28-34,38-45) contended that the examples of permissible and impermissible dilution contained in the proposal need clarification and that the conclusion drawn from one of the examples may be incorrect. Specifically, the commenters disagreed with EPA's conclusion that a mixture of a small volume of a prohibited non-wastewater containing 5 percent total organic carbon (TOC) and a large volume of wastewater containing less than 1 percent TOC constituted impermissible dilution because the only treatment received by the mixture is for the removal of total suspended solids (TSS), with no specific treatment for the organics. The commenter stated that while the example provided insufficient information to determine the extent BDAT constituents are removed some BDAT constituents are definitely removed as a result of the TSS removal. According to the commenters, TSS removal may substantially reduce the level of organics. The commenters sought EPA's clarification on why this example constituted dilution rather than treatment. The commenters also sought EPA's guidance on what conditions would be necessary for this example to be considered treatment. One of the commenters (214) wanted to know if only 1 percent of the organics remained in the wastewater after treatment, would it still constitute dilution. The commenter maintained that EPA's distinction between dilution

and treatment is too ambiguous in the real world to guide either compliance or enforcement. The second commenter (261) asked whether either the percentage removed of the total mass of organics in the mixture or the percentage removed of the mass of organics in the prohibited wastewater had any bearing on defining this process as either dilution or treatment. The commenter also questioned why it would be preferable to treat separately the prohibited non-wastewater if 100 percent of the mass of BDAT constituents contained in the prohibited waste were removed by mixing the wastes and removing TSS from the resulting mixture.

Agency Response

In the example in the proposed rule preamble, a non-wastewater was mixed with an incompatible waste to change treatability groups; the settling is not legitimate treatment of a toxic organic waste. This waste can be segregated and treated as is.

More generally, as described in detail in earlier responses, the final rule continues to prohibit the dilution of toxic non-wastewaters with wastewaters for the purpose of avoiding appropriate treatment. The Agency notes that the problem with mixing prohibited high TOC ignitable non-wastewaters with wastewaters is that such mixing does nothing to remove the toxic constituents. Non-wastewaters containing high levels of TOC typically contain high concentrations of toxic constituents and the process of mixing dilutes, but does not treat the hazard. In the Agency's view, this type of dilution constitutes an attempt by the generator to convert a non-wastewater into a wastewater so that it avoids a specified method and hence the LDR requirements.

Summary of Comments

Synthetic Organic Chemical Manufacturers Association (108-p.12) and Tricil Environmental Services (091-p.6) stated that the inherent conflict in EPA's approach is well-illustrated by a paragraph from EPA's preambular discussion of the issue of dilution of characteristic waste:

Consequently, under the rules proposed today, if an impermissible form of dilution occurs that renders a toxic hazardous waste nonhazardous, the act of dilution would be illegal but the waste would be nonhazardous for subsequent management purposes. That is, EPA is not today redefining hazardous waste, but is instead imposing a condition on how hazardous waste can be managed. Thus, penalties for impermissibly diluting a prohibited hazardous waste could include fines and injunctive relief such as digging up the waste and treating it properly. However, a unit receiving a diluted waste which is no longer defined as hazardous would not become a regulated unit subject to Subtitle C regulation. (54 FR 48495).

Thus, a treatment step that is legitimate and legal under the current regulations would become illegal. But management of a purportedly "prohibited" waste in a sanitary landfill would not be. The commenter stated that the Agency is driven to this "bizarre" characterization of the regulatory effect of its proposal in order to avoid acknowledging its actual, disruptive impact on the entire RCRA regulatory program. The commenter stipulated that EPA is in fact seeking to redefine hazardous waste.

Agency Response

The Agency disagrees with the commenter's description that the proposed rule would have created "bizarre" situations. EPA is not prepared in this

rule to address the ramifications were it to amend Part 261 rules. See earlier response to the Environmental Defense Fund (pp. 209-210).

Summary of Comments

Lubrizol (184-p.2) stated that specialty chemical companies that generate a variety of unique, characteristic wastes may find the requirements of the proposed rule untenable. Many of these wastes, managed either separately or commingled, may be subject to multiple treatment standards beyond characteristic levels so as to require the development of treatment trains. Subjecting uniquely generated wastes to treatment trains may be prohibitively impractical, even impossible, for a specialty chemical company. Companies that use commercial TSD facilities to manage their wastes will find that the necessity to treat each individual or commingled wastestream through a unique treatment train will dramatically complicate waste management and make it impossible to find a facility that can handle the wastes in accordance with the proposed regulations. The commenter stated that generators of characteristic wastes should be granted the flexibility to select the best treatment for these wastes and that the treatment should be deemed adequate if the treated wastes no longer exhibit any hazardous waste characteristics.

Agency Response

The Agency believes that in most cases treatment trains will be minimized because the majority of treatment standards for D001 and D003 wastes is deactivation, which includes a wide variety of methods found in Appendix VI of Part 268. EPA developed this approach in order to provide that maximum

degree of flexibility and to avoid requiring treaters to use extensive treatment trains.

10.4 Congressional Intent

Summary of Comments

Several commenters (The Synthetic Organic Chemical Manufacturers Association (108-pp.20-27), Dow (179-pp.33-35), Sterling Chemical (197-pp.2-4), Union Carbide (227-p.1), and The Chemical Manufacturers Association (L007-pp.9-24)) asserted that EPA misinterpreted Congressional intent in formulating the anti-dilution prohibitions in the proposed rule. Three of the commenters (108, 179, and 197) contended that EPA incorrectly interpreted a Congressional statement "admonishing" against permitting dilution in lieu of treatment. According to the commenters, this legislative history applies to a provision that would have granted EPA the discretion to prohibit dilution as a means of avoiding treatment standards, but would not have mandated such action. The commenters asserted that because the relevant provision was deleted from the final version of the bill, EPA's action is unwarranted and contrary to Congressional intent. Other commenters (Tricil Environmental Services (091-pp.7-8), Allied-Signal (267-pp.7-8), Rohm & Haas (194-p.29), and Browning-Ferris (214-pp.6-7)) stated that the only potentially plausible argument presented by the Agency in support of its "literal" interpretation of the statute is the claim that "this construction is a necessary approach to vindicate the Congressional admonition against dilution in lieu of treatment" (54 FR 48490). These commenters stated that the Agency's construction of Section 3004(m) is not necessary in order to vindicate Congress' admitted concern with dilution in lieu of treatment. Another commenter (American Petroleum Institute (168-pp.77-87)) acknowledged Congressional concern about dilution practices used to circumvent land disposal restrictions, but argued

that the RCRA statute does not prohibit dilution. The commenter further claimed that Congress recognized that aggregation of certain manufacturing wastestreams is often entirely legitimate.

Agency Response

The concerns expressed by the commenters have for the most part been addressed in the final rule. The Agency, however, disagrees with the commenters' contention that the proposed rule mis-characterized Congressional intent and that the Agency exceeded its authority in promulgating dilution prohibitions. EPA notes that its authority to promulgate a dilution prohibition is based not only on the LDR statutory provisions and Congressional directives, but in addition, on the more general authority in Section 3004(a)(3) to establish treatment standards "as may be satisfactory to the Administrator" and "as may be necessary to protect human health and the environment."

Summary of Comments

Several commenters (Tricil Environmental Services (091-pp.7-8), Allied-Signal (267-pp.7-8), Rohm & Haas (194-p.29), and Browning-Ferris (214-pp.6-7)) stated that even if Congress were concerned with the dilution of characteristic wastes, EPA has authority pursuant to Section 3004(a) to promulgate regulations establishing performance standards for the treatment of hazardous waste as may be necessary to protect human health and the environment, including a prohibition on dilution that does not involve treatment. Therefore, if EPA deems it necessary to promulgate defensible

treatment standards, it should do so under the proper authority, abiding by the proper administrative procedures necessary for rulemaking, rather than by doing so via the circuitous route of using Section 3004(m). The concern with dilution, however, does not give EPA the authority to require treatment to beyond-characteristic parameters of a waste that has already been treated to a nonhazardous level.

Agency Response

Although the construction of the final rule removes the primary source of the objections (i.e., treatment below characteristic levels), the Agency reaffirms its authority to do so in this rulemaking. The decision not to require treatment beyond characteristic levels was made independently of this issue and based on reasons that have been detailed in other responses to comments and in the final rule.

10.5 Proposed Requirement to Reduce at Least One BDAT Constituent

Summary of Comments

The Fertilizer Institute (092-pp.18-22) insisted that, rather than clarifying the rule on impermissible dilution, the Agency is proposing to revise the current rule drastically. The commenter contended that, EPA has issued guidance documents stating that dilution that occurs as a result of normal aggregation at the headworks of a wastewater facility is not prohibited. The commenter further asserted that EPA has recognized that the purpose of this kind of aggregation is not to avoid RCRA requirements or the land disposal restrictions but to facilitate collection and treatment of wastes in a cost-effective and environmentally sound fashion.

The commenter opposed the proposal to prohibit the mixing of wastes unless some reduction of the toxicity or mobility of at least one BDAT constituent occurs for the three following reasons:

- (1) The environment will receive no benefit because the rules already require that the aggregated waste meet BDAT levels for all restricted hazardous waste in the mixture;
- (2) Facilities that have historically aggregated their waste prior to management would be unreasonably forced to abandon these practices simply because no reduction in toxicity or mobility of a BDAT list constituent is occurring; and
- (3) EPA's objective to prohibit impermissible dilution has already been achieved because the existing rule prohibits

dilution to avoid land disposal restrictions or treatment standards.

Furthermore, the commenter claimed that the examples supporting the clarification of the dilution rule are not useful because these situations are already covered by the existing rule.

The Fertilizer Institute also commented on the issue as to whether dilution can be used as a means of supplanting a Section 3004(m) treatment standard by being used to render a prohibited waste nonhazardous in lieu of actually treating the prohibited waste prior to land disposal. The commenter maintained that EPA is attempting to use Section 3004(m) to expand its authority beyond statutorily established boundaries. The commenter suggested that EPA must initiate a separate rulemaking if it is seeking to abolish the characteristic test as a measure for determining whether material is hazardous or to impose additional requirements to restrict dilution of characteristic hazardous waste.

Agency Response

As stated in previous responses, the Agency has decided against requiring actual reduction in the toxicity or mobility of at least one BDAT constituent as a condition for permitting aggregation of wastewaters prior to treatment. This proposed requirement created a wide range of implementation problems including difficulties in trying to establish specific reduction levels that would be required to be considered permissible dilution. Instead, the Agency is providing interpretative guidance to clarify how the dilution rules apply to specific situations. In general, the Agency is not prohibiting

the dilution of wastes generated and managed under the CWA or the aggregation of compatible wastewaters when followed by additional treatment. The Agency believes that the final rule addresses the commenter's concern that EPA was attempting to expand its authority rather than clarifying the issue of permissible dilution.

Summary of Comments

Four commenters (Cyanokem (110-p.36), Rollins Environmental Services (124-p.20), Hazardous Waste Treatment Council (172-pp.131-133), and Environmental Systems (188-p.2)) supported EPA's distinction between impermissible dilution and blending and mixing wastes prior to treatment. These commenters also agreed with EPA's proposal to require, as a condition for permissible dilution, a reduction in the concentration of at least one BDAT constituent. The four commenters, however, also believed that if each of the wastes in a mixture is treated by an appropriate method (e.g., by the BDAT method), impermissible dilution has not occurred.

One commenter (110) suggested that the demonstration that at least one BDAT constituent is reduced in concentration or changed in chemical form should be based on the highest quantity constituent treated by the facility.

A second commenter (172) recommended that the rule explicitly prohibit the addition of constituents to a wastestream that would make the wastestream more difficult to treat even where dilution does not occur (e.g., by adding ammonia compounds to metal-bearing wastes). This commenter also identified the following two examples of what it believed was appropriate treatment:

- (1) Combining numerous wastestreams that all have metals BDAT standards in a single batch would be allowable provided that each waste has a metal BDAT that had been demonstrated as being treatable through laboratory or literature reference; and
- (2) Combining wastes that dilute a complexed cyanide to below the BDAT level for total cyanide is acceptable, provided that each waste is treated for either metals through stabilization or free cyanides through alkaline chlorination.

Agency Response

The Agency has decided not to impose a quantified standard for reducing the toxicity or mobility of at least one BDAT constituent in each prohibited waste. The Agency, however, does assert that treatment must involve reduction of toxicity or mobility of BDAT constituents if it is to be regarded as legitimate. A "treatment" that consisted of simply combining a characteristic hazardous waste (e.g., EP toxic for metals) with a large volume of nonhazardous waste without further treatment would not likely be considered legitimate. Only in the cases of non-toxic ignitable, reactive, and corrosive wastes is dilution in itself considered appropriate treatment. Furthermore, combining wastes so that an inappropriate treatment technique is applied is not permissible. For example, aggregating two wastestreams so that a biological treatment system was being used to treat metal-bearing prohibited waste would not be appropriate. Aggregation of compatible wastes (i.e., wastes amenable to the same type of treatment) prior to treatment that

achieves the appropriate BDAT standards is permissible. The examples provided by the commenter appear to meet the criteria of combining compatible wastes for efficient treatment and thus would be appropriate.

Summary of Comments

Michigan Disposal Inc. (113-pp.10-11) and Wayne Disposal (130-pp.3) supported allowing waste aggregation for centralized treatment even if this leads to dilution of BDAT constituents. These commenters, however, declared that prohibited wastes should not be mixed with larger volumes of other wastes to meet treatment standards without undergoing treatment that substantially reduces the prohibited waste's toxicity or mobility. They also opposed dilution where it causes less effective treatment for a heavily concentrated prohibited waste.

The commenters believed that dilution should not be used as a means of supplanting a Section 3004(m) treatment standard by being used to render a prohibited waste nonhazardous in lieu of treating the prohibited hazardous waste prior to land disposal. They suggested that EPA revise the proposed definition of "reduction in toxicity" to include treatment processes which reduce toxicity through stabilization by chemically bonding the organic constituent into a solid form or physically encapsulating the organic within a solid matrix.

Agency Response

The commenters' views, in general, are in agreement with the final rule. The Agency notes that because it is no longer explicitly requiring the

reduction in toxicity or mobility of at least one BDAT constituent, there is no need to redefine "reduction in toxicity."

Summary of Comments

The ICWM (164-p.7) had several comments on dilution. Specifically, this commenter:

- Supported EPA's position that wastes combined for treatment must meet the lowest standard for the BDAT constituents;
- Urged EPA to state that mixing wastes after achieving BDAT standards is also permissible;
- Argued that dilution can be an inadvertent result of combining multiple wastestreams in a commercial treatment facility for technological and economic reasons; and
- Suggested that the prohibition on dilution should not apply to mixing of wastes "whose BDAT based treatment standard is developed upon the same technology, provided that the most stringent concentrations are achieved."

Agency Response

The final rule being promulgated by the Agency permits aggregation of wastewaters for the purposes of legitimate centralized treatment. This is interpreted by the Agency to mean it is permissible to combine wastes that are subject to the same BDAT standards prior to treatment. The suggestions

offered by the commenter appear to be consistent with the interpretation contained in the final rule.

Summary of Comments

Sterling Chemical (197-pp.2-4) argued that dilution used for legitimate treatment purposes should not be impermissible, even if the diluted waste does not meet the proposed reduction requirement. The commenter stated that the reduction concept is wrong because it may in many circumstances force generators to obtain a Part B permit for the otherwise incidental effects of activities that have been in place for years. The commenter added that because the Agency has not prescribed "dilution with reduction" as a specified BDAT technology, even where the required reduction in itself may be significant it is guaranteed from the start not to be sufficient.

The commenter suggested that if the Agency feels compelled to reinterpret the dilution rule, the Agency should address the concept of "circumvention" and not the concept of "reduction." A revised interpretation should support the Agency's consistent and long held position that aggregation of wastestreams to facilitate centralized treatment is permissible dilution. The commenter recommended that, in lieu of the proposed interpretation, the Agency permit aggregation practices that were in effect prior to the proposed rule and that were not designed to avoid land disposal restrictions. The commenter suggested that the Agency might want to place the burden on the generator to demonstrate that the dilution practices that started after the date of the proposed rule were not designed to circumvent land disposal restrictions.

The commenter estimated that if the proposal were implemented unchanged, approximately 15 of its wastestreams amounting to 70 million gallons annually would be affected. According to Sterling, these wastestreams would have to be treated primarily by incineration for which there is little if any available capacity.

Agency Response

The concerns raised by the commenter have for the most part have been addressed in the final rule. The Agency maintains, however, that in proposing the dilution prohibitions it did not exceed its authority. In developing the final rule the Agency took into account the potential for disruption of existing treatment systems and problems of integrating the LDR rules with other legislative programs (e.g., Clean Water Act). The Agency reiterates its interpretation that aggregation of wastewaters for the purpose of centralized treatment is permissible. Dilution as a method of treatment is legitimate for a limited type of wastes (e.g., non-toxic corrosive wastes).

Summary of Comments

BP Chemicals (216-pp.16-18) called for EPA to withdraw its proposed expansion of the dilution rule. The commenter argued that requiring that aggregation of wastes for centralized treatment results in actual reduction in toxicity or mobility for at least on BDAT constituent in each prohibited waste creates financial and regulatory compliance problems for industry. Application of the rule reduces the number of treatment units qualifying as "legitimate" units and creates the need for facilities to install new

equipment designed to meet the standards of the proposed rule. The commenter claimed that it is infeasible for facilities to obtain the permits and funding necessary to install new equipment before the expected May 8, 1990, effective date of the rule. The commenter pointed out that the final rule may be different than the proposed rule. So, even facilities installing new equipment risk non-compliance with the final rule.

BP Chemicals asserted that if EPA should choose to proceed with its proposed expansion of the dilution rule, the rule should only apply to wastes addressed for the first time in the proposal and not retroactively apply to the California list wastes. The California list rule allows aggregation as a means to facilitate treatment. The commenter believes that applying the expansion and new interpretation of the dilution rule to the California list prohibitions would cause confusion in EPA and in industry.

Agency Response

The concerns expressed by the commenter for the most part have been rendered moot by the final rule. The Agency notes that the commenter must use the guidance contained in the final rule to ensure that the types of aggregation being described meet the criteria for legitimate treatment. Although the final rule removes some of the proscriptions on dilution and aggregation that were in the proposed rule, the Agency notes that not all forms of dilution are now considered legitimate.

10.6 Newly Identified and Listed Wastes

Summary of Comments

The American Mining Congress (201-pp.21-25) suggested that EPA abandon the proposed modification of the dilution prohibition forbidding mixing prohibited hazardous wastes with other materials unless there is a reduction in the toxicity or mobility of at least one BDAT constituent in each prohibited waste being mixed. The commenter claimed that EPA's proposal may even restrict mixing where one BDAT constituent in each prohibited waste is treated. The commenter asserted that mixing is often necessary to facilitate proper waste treatment and that segregating wastes may necessitate duplication of waste management systems.

The commenter believes that even if EPA proceeds with the proposed modification, it should clarify that the prohibition does not restrict mixing of Bevill wastes and non-Bevill mineral processing wastes. EPA has excluded extraction and beneficiation wastes from the Subtitle C regulatory program; thus, the commenter concludes, applying the dilution prohibition, a Subtitle C program, to the mixing of non-Bevill mineral processing wastes with Bevill extraction and beneficiation wastes would be particularly inappropriate.

Mineral processing, extraction, and beneficiation operations are frequently conducted at the same site and the wastes of these processes are typically combined. The commenter contended the intended scope of the Bevill amendment exempts this practice from Subtitle C restrictions. Moreover, the commenter argued that this mixing practice is beneficial to the environment. For example, mixing process wastes and mill tailings effectively immobilizes inorganic contaminants in a manner similar to excess lime treatment, and

excess lime treatment is one technology that is part of the BDAT for removing metals from nonferrous smelting and refining wastewaters under the Clean Water Act. Many facilities co-manage waste in a similar fashion in order to meet with non-RCRA regulatory requirements. The commenter stated that such mixing practices should not be prohibited under Subtitle C.

AMC also argued that the dilution prohibition should not apply to mixtures of non-Bevill processing wastes and Bevill processing wastes that have not been the subject of a regulatory determination following the completion of a "special study." The commenter stated that "under the express language of the statute, Bevill Amendment processing wastes are temporarily exempt for all provisions of Subtitle C, including the dilution prohibition, until the special study is completed and a regulatory determination made." The legislative history of the Bevill amendment appears to confirm this conclusion. The commenter concludes that mixing Bevill and non-Bevill wastes should be permissible if the resulting mixture is exempt for regulation under Subtitle C.

Agency Response

Because the Agency has substantially revised the dilution prohibitions in the final rule, several of the issues raised by the commenter are no longer relevant. The Agency cannot respond specifically to the commenter's question regarding the mixing of Bevill wastes with non-Bevill wastes because no BDAT treatment standards have been promulgated for mineral processing wastes. These standards will be issued after EPA has completed its technical analyses. The Agency disagrees with the commenter's assertion that former Bevill wastes are immune from Subtitle C regulation until EPA has completed its studies and

has made a regulatory determination. This is true only for those mineral processing wastes that have been retained in the Bevill exclusion. The Agency's decision not to apply BDAT standards at this time is a discretionary one. This matter was also at issue in some of the Bevill proceedings before the Agency, and should be addressed in the context of those rulemakings.

10.7 Examples and Questions Requiring Clarification

Summary of Comments

BP America (098-pp.1,6-9) provided six examples demonstrating what it considered normal and necessary aggregation of wastestreams for centralized treatment. The commenter also noted that the practices described in these examples have been recognized by EPA as environmentally and technically sound.

In Example 1, the commenter noted that BDAT standards for K011 and K013 wastes were based on performance data for treatment of a mixture containing K011 and K013 wastes and a mixture containing K011, K013, and K014 wastes. Since the Agency has aggregated these wastes to determine the treatment standard, the commenter argued that any aggregation of these wastestreams should be permissible, even if it results in dilution.

In Example 2, the commenter argued that since performance data from F and K aromatic hydrocarbon coded wastes were used to develop the U aromatic hydrocarbon waste treatment standards, it should be legitimate to aggregated the three waste types for centralized treatment. According to the commenter, "When EPA has established a treatment level that is applicable to a waste grouping, aggregation for centralized treatment should be permitted within the treatability group."

In Example 3, the commenter claimed that the aggregation of D002 Acid and Alkaline subcategory enhances treatment, minimizes salt formation and conserves resources." The commenter asserted that combining these wastes minimizes the need to add acid or alkaline solutions to neutralize wastestreams and reduces the overall volume of wastewater and sludge generated.

In Example 4, the commenter contended that "corrosive wastes are commingled within refinery wastewater treatment facilities to minimize chemical addition." In the commenter's view, because commingling of various wastestreams neutralizes the corrosive wastes, such aggregation is treatment not dilution.

In Example 5, the commenter argued that "chromate in cooling tower blowdown is converted to the insoluble form and precipitated in centralized treatment facilities." The commenter maintained that commingling of these wastes converts chromium from the soluble to the highly insoluble trivalent form of chromium. The commenter concluded that because most of the chromium is removed with solids during the waste treatment process the aggregation should be considered permissible.

In Example 6, the commenter claimed that iron sulfide scale that may be flushed into the sewer systems during cleaning operations and commingled with other refinery wastewaters is either precipitated or biologically treated in centralized treatment facilities. The commenter stated that because the mixed wastewater is not reactive, and further treatment removes most of both the soluble and insoluble forms the remaining sulfide, the aggregation should be considered permissible.

BP America also asserted that the proposal will adversely affect industrial facilities that have begun preparing to comply with the new organic toxicity characteristic rule. The commenter claimed that if the dilution proposal is implemented, wastewaters would need to be treated to BDAT prior to aggregation, and new systems that have been built to aggregate wastewaters to remove the new characteristic. According to the commenter, the rule would force facilities to redesign existing systems and employ costly, redundant, and inefficient treatment equipment.

Agency Response

Based on further evaluation and careful review of the comments received, EPA has revised its position on dilution and the practice of aggregation in the final rule. The final rule broadens EPA's interpretation of permissible dilution and aggregation for the purposes of implementing the land disposal restrictions. When wastes are all legitimately amenable to the same type of treatment, and this method of treatment is utilized for the aggregated wastes, aggregation is permissible, even if dilution occurs. Also, the Agency states that dilution is an allowable treatment for certain ignitable, corrosive, and reactive wastes because it effectively removes these characteristic properties.

The final rule also provides for dilution of characteristic wastewaters. EPA is not applying the dilution prohibition to most characteristic wastes regulated under the CWA or SDWA. This decision, based on the need to integrate RCRA, the CWA, and the SDWA, should ameliorate impacts that would have warranted the redesign of some environmentally sound wastewater treatment systems.

Responding to the examples provided by the commenter, the Agency believes that the first four examples constitute permissible practices because they all involve commingling of compatible wastes for appropriate treatment. EPA believes that Example 5 appears legitimate, but more facts may be needed. The sixth example also appears to be legitimate treatment.

Summary of Comments

IRECO (126-p.5) raised two questions regarding EPA's clarification of impermissible dilution: (1) If the prohibition on dilution applies to production materials that are washed into sumps? (The commenter noted that the washdown of certain explosives will dilute and in some cases deactivate these materials. The commenter suggested that washdown should be considered as a waste generation process and not as waste treatment by dilution.) and, (2) If the rules allow dilution as a method of waste handling in emergency response situations, such as where dilution is the most practical means of deactivating a spill of ignitable or reactive material?

The commenter recommended that EPA limit the application of the "no dilution rule" to toxic hazardous wastes which would be consistent with RCRA Section 3004(m).

Agency Response

EPA is applying the dilution prohibition essentially only to toxic characteristic wastes. The Agency is also developing rules to avoid counterproductive effects on CWA and SDWA programs.

Summary of Comments

USPCI (137-pp.8-10) strongly supported the proposal to permit dilution only when at least one BDAT constituent is treated. The commenter also agreed with EPA's position that dilution is both acceptable and necessary in

centralized treatment and provided four examples of what it considered appropriate dilution.

In Example 1, different wastes including drummed wastes, laboratory samples, and bulk wastes are treated to a set of common BDAT standards and stabilized in 20,000 gallon open-topped tanks. The commenter asserted that the combination or dilution of numerous wastestreams, which all have metal BDAT standards, in a single batch should be allowable provided each commingled waste would have a metal BDAT (or specified treatment technology) that has been demonstrated as being treatability through laboratory or literature reference. In Example 2, a mixture of electroplating and metal finishing waste is treated with alkaline chlorination for compliance with treatment standards set for both total and amenable cyanides. One of the wastestreams exceeds the total cyanide standard due to the presence elevated levels of complexed cyanide for which the alkaline chlorination is not completely effective. The commenter believed that combinations of wastes that would dilute the complexed cyanide to below the BDAT standard should be acceptable provided all of the commingled wastes are treated for either metals through stabilization or free cyanides through alkaline chlorination.

In Example 3, a wastestream with both organic and metals BDAT standards is incinerated so that the resultant ash contains a small amount of metal that is either undetectable or below the TCLP BDAT limit. The commenter stated that this practice is appropriate because of the small quantity of the metal constituent even though its treatment has not been verified.

In Example 4, a D002 waste is combined with a mixture of D002 and D004 wastes for neutralization. The commenter asserted that the "treatment of one constituent rule would apply to the dilution of the D002 waste although the hydronium ion is not a hazardous constituent per se."

USPCI argued that the Agency's proposed use of the term "chemical change" may preclude facilities from using absorptive technologies to remove organic constituents. The commenter believed that the phrase chemical change means "a change that is measured by a chemical test such as TCLP or GC/MS." According to the commenter, absorptive technologies have been shown to reduce the mobility of organic constituents and should not be "prohibited sub rosa by redefining dilution." The commenter stated that if EPA intends to bar absorptive technologies for the treatment of organic constituents, then it should do it by directly proposing it as a rule and not by redefining words (i.e., dilution). Finally, the commenter urged EPA to clarify the meaning of "chemical change."

Agency Response

The general approach suggested by commenter is similar to that contained in the final rule. The Agency did not, however, establish quantified reductions levels in BDAT toxicity or mobility that would have to be obtained in order to have permissible dilution.

In response to the commenter's examples, EPA believes that Examples 1 through 3 involve legitimate practices. The Agency notes for Example 2, that it is legitimate to pretreat to make the wastes amenable to alkaline chlorination. The fourth example may not constitute legitimate treatment because of the presence of arsenic.

Summary of Comments

Department of Energy (198-pp.21-23) requested EPA to clarify the distinction between permissible and impermissible dilution. Specifically, the commenter requested EPA to clarify if either of the two following scenarios constitute permissible dilution:

- Only one BDAT constituent in a mixture of wastes is reduced. For example, an organic is combined with a metal and the combination is treated for just the organic constituents.
- A lead non-wastewater is combined with an arsenic/lead non-wastewater and initially treated for the lead through a cementitious process that did not result in binding of the arsenic.

Agency Response

The Agency believes that the first example ordinarily does not constitute permissible dilution. Incompatible wastes are mixed, and no treatment is provided for the metal constituents. Based on the facts provided by the commenter, EPA sees no purpose for mixing the metals other than to dilute. In contrast, the second example appears to be legitimate because the wastes are compatible; further treatment for arsenic may be required, however.

Summary of Comments

Browning-Ferris (214-pp.17-25) found the provision to apply the dilution rule only to prohibited wastes disposed via a prohibited form of land disposal very ambiguous when dealing with characteristic wastes. The commenter provided the following example:

- If a hazardous waste is mixed in tanks prior to discharge to a POTW for treatment, then the hazardous wastewater is not destined for land disposal and it is not subject to the dilution prohibition. According to the commenter, this is true even if as a result of the treatment in tanks, a non-wastewater sludge is generated and will be land disposed.

The commenter also requested that EPA clarify if the dilution rule and BDAT requirements apply in following scenarios:

- The hazardous wastes are characteristic wastes;
- The wastewaters are sent to an equalization basin after the treatment in the tanks and prior to POTW discharge.
- Only a small portion of the treated wastewater stream is land disposed; and
- The hazardous waste mixed in the tanks was a non-wastewater.

The commenter asked how will this test interact with recycling or reclamation activities or with any use that constitutes disposal on land?

The commenter also stated that distinctions will need to be made for "complex waste mixtures, residues, ground-water contamination, and so on," but did not explain why such distinctions might be necessary. The commenter asserted that additional guidance is needed to enable companies to comply with the land disposal restrictions

Agency Response

In response to the commenters concerns, the Agency makes the following points:

- The commenter is correct in asserting that hazardous wastewaters not destined for land disposal are not subject to the dilution prohibition.
- Characteristic hazardous wastes destined for surface land disposal are subject to the point of generation approach. For example, if non-wastewater EP toxic pesticides are incinerated, the prescribed method of treatment, and the residues are land disposed, then the entire pesticide wastestream is considered as destined for land disposal.
- Corrosive wastes are not subject to the dilution prohibition. Thus, if corrosive wastewater is neutralized in a tank to be below the characteristic level, it has complied with the land disposal restrictions.
- If a wastewater that is EP toxic for metals is mixed with a non-characteristic waste- stream and treated for metals removal prior to discharge to a POTW or NPDES outflow, it is not subject to the

dilution prohibition. Thus, if the EP toxic wastestream, after being combined with a non-characteristic wastestream and treated for metals recovery, is no longer EP toxic, it has complied with the LDRs. It can be discharged even if the treatment sludge is EP toxic for metals and is ultimately land disposed.

- EPA has not fully analyzed all the exclusions from the definitions of hazardous waste under 40 CFR 261.3 to 261.6 for purposes of determining the implications of whether to apply a point of generation approach to wastes qualifying for such exclusions. In the absence of such investigations, EPA has determined that the land disposal restrictions will not be applied to wastes qualifying for these exclusions. Thus, characteristic hazardous wastes that become exempt from hazardous waste regulation by virtue of legitimate recycling or reclamation are typically not subject to the LDRs even if part of such wastes are destined for land disposal following their exclusion under 40 CFR 261.3 to 261.6. In addition, Section 261.6 expressly limits the applicability of the land disposal restrictions and certain other hazardous waste regulations to hazardous wastes that are recycled.

EPA expects shortly to engage in rulemaking clarifying further the relationships of the land ban to uses constituting disposal.

Summary of Comments

Allied-Signal (267-pp.6,28-34,38-45) provided examples to support its assertion that EPA needs to substantially clarify the meaning of

"impermissible" dilution and to distinguish between dilution and treatment, particularly in the case of wastes being combined for centralized treatment.

(1) One example concerned EP toxic wastes for various metals, mixed with various acidic wastes, then treated for neutralization. Neutralization generates insoluble metallic hydroxides and reduces the prohibited waste's toxicity or mobility. The commenter posed the following questions concerning the factors in this process crucial to defining it as treatment or dilution:

- Does it matter how substantial the EP toxic wastestream is in comparison with the acidic wastestream?
- Does it matter whether any of the acid streams are subject to a BDAT treatment standard?
- Is it necessary to determine the mass of metals removed from the wastewater as a result of the neutralization treatment and any subsequent settling of the precipitates?
- Is it necessary that the hydroxides be settled out of the treated wastes?
- What if neutralization treatment is applied after the wastewaters leave the basin even though due to dilution the EP toxic metals concentration in the basin is below the characteristic level or even below the BDAT level?

The commenter claimed that it will face numerous situations analogous to the one above if the toxicity characteristic regulations are promulgated.

(2) The dilution prohibition applies only to prohibited wastes destined for a prohibited form of "land disposal." Applying this principle can be extremely complicated. For example, if a hazardous wastewater is mixed in tanks and then discharged to a POTW for treatment, the wastewater is not destined for land disposal and, therefore, not subject to the dilution restrictions, even if a non-wastewater sludge is generated that will be land disposed. The commenter posed several questions concerning this situation:

- Is the sludge subject to the land disposal treatment standard if the hazardous wastes at issue are characteristic wastes and if the sludge itself is not characteristically hazardous?
- If the wastewaters were sent to an equalization basin after the treatment in the tanks and prior to ultimate discharge to the POTW, would the "disposal" of the wastewaters on the land after the generation of the sludge render the sludge subject to the land disposal treatment standards?
- How would the dilution prohibition apply if only a small portion of the wastewater stream after treatment in the tanks is "destined" for land disposal?

The commenter also asked how the dilution prohibition would apply to a situation in which the hazardous waste mixed in the tanks was a non-wastewater (at 1 percent TOC) and the sludge generated by treatment in the tanks contained

practically none of the organics responsible for the waste's characterization as a hazardous waste.

- Would the land disposal of the sludge be subject to the treatment standards?
- Would mixing the hazardous waste and the wastewater violate the prohibition of impermissible dilution, even though the organics stay in the wastes sent to the POTW and are not land disposed?

The commenter concluded that EPA should offer more guidance to facilities attempting to comply with the land disposal regulations. The commenter also recommended that EPA eliminate many of the complications facing facilities by abandoning its effort to set treatment standards for characteristic hazardous waste below the characteristic levels themselves.

Agency Response

In response to the commenter's specific questions regarding the first example, EPA notes the following:

- It does not matter how substantial the EP toxic wastestream is in comparison with the acidic wastestream, assuming that the wastes are compatible.
- It does not matter whether any of the acid streams are subject to a BDAT treatment standard.

- The question whether it is necessary to determine the mass of metals removed from the wastewater as a result of the neutralization treatment and any subsequent settling of the precipitates bears on the issue of compatibility; however, EPA is not applying dilution rules to most characteristic wastewaters.
- It is probably necessary that the hydroxides be settled out of the treated wastes; otherwise there would be no treatment of metals (if this is a system subject to dilution prohibition at all). The situation described in the last question is one reason that EPA is not applying dilution prohibition in the wastewater treatment world. Legitimate equalization could reduce metal levels to below BDAT, yet be necessary for subsequent legitimate treatment. EPA does not intend to prohibit this classic method of wastewater treatment.

In response to the second situation provided by the commenter, the Agency notes the sludges described both situations would not be subject to the land disposal treatment standard. This is because the sludges are a new treatability group and the prohibition status is assessed when the waste is generated.

- The dilution prohibition would not apply to the example where only a small portion of the wastewater stream after treatment in the tanks is "destined" for land disposal, if the wastewater was a characteristic wastewater.

- The BDAT treatment standards would not apply to the land disposal of sludge if the wastewater was characteristically hazardous, but the sludge was not.
- EPA does not view contact of supernatant and precipitated solids in a treatment tank to be mixing. Hence, the commingling of the hazardous waste and the wastewater would be permissible.

Summary of Comments

The Chemical Manufacturers Association (L007-pp.9-24) commented on a wide range of issues related to the proposed dilution rule. A second commenter (National Paint and Coatings Association (158-p.3)) endorsed CMA comments by reference. A third commenter (Oxychem (138-pp.3-8)) commented on some, but not all of the issues raised by CMA.

The commenters found that the proposed rule contradicts an earlier Agency policy of permitting aggregation of wastestreams for the purpose of centralized treatment.

CMA provided five detailed hypothetical examples to demonstrate the complexity of the rule, its far reaching consequences on chemical manufacturers, and how it can render useless carefully planned upgrades to wastewater treatment systems.

Example A is a plant that aggregates 10 wastewater streams, including one EP toxic waste- stream, and routes the resulting mixture to a Subtitle D biological treatment for further treatment. The treated waste is discharged through an NPDES permit, although the BDAT for wastewater is not achieved. The commenter made the following points:

- Routing the aggregated stream containing below EP toxic concentration to a Subtitle D impoundment does not change the status of the impoundment into a Subtitle C unit.
- Permissible dilution has occurred provided that treatment substantially reduces the toxicity of the aggregated wastestream.
- Under the proposal, however, the plant will have violated Section 3004(m) of RCRA because placement in the impoundment constitutes land disposal and the BDAT standard for wastewater must be met.

Example B is a plant generating hundreds of aqueous wastestreams, including a EP toxic waste- stream and ten ignitable wastestreams, two of which are non-wastewaters due to organic content. The wastestreams are then aggregated so that they are no longer EP toxic or ignitable. The commenter made the following points:

- The facility may be charged with impermissible dilution and be required to incinerate largely inorganic waster treatment sludge not amenable to incineration. Otherwise the two ignitable non-wastewater streams may have to be segregated, stored, and shipped off-site.
- Under the proposal, impermissible dilution took place because the aggregation would have the effect of converting wastewater to non-wastewater.

- Because the sludge derives partly from two ignitable non-wastewater streams, the BDAT methods for ignitable wastes would apply, even though the sludge does not exhibit the ignitability characteristic.

Example C is a plant that aggregates fifty separate wastewater process streams at or upstream of the wastewater treatment system that includes a biological treatment impoundment. Ten of the wastestreams readily biodegrade, but are ignitable prior to aggregation because they contain constituents such as methanol and acetone. The commenter noted the following:

- Because EPA established specific methods as a BDAT standard for ignitable waste, aggregation and routing of these wastes to wastewater treatment is not permitted. Thus the proposal would disrupt the plant's operation.

Example D generates 10 separate but large volume wastestreams: three that are EP toxic, one ignitable, one a reactive sulfide wastewater, one a reactive sulfide non-wastewater, three corrosive (two alkaline and one acidic), and one wastestream containing greater than one percent suspended solids. Both before and after treatment the aggregated wastestream exhibits none of the characteristics of hazardous waste. The treated waste has a pH of 4, contains chromium and lead below the characteristic level in the form of soluble salts, and is injected into an underground injection well. The commenter made the following points:

- The injected wastestream injected by the plant is nonhazardous and does not require a hazardous waste disposal permit or an exemption from any land disposal prohibitions because it is not hazardous at the point of injection.
- The EP toxic non-wastewater stream containing chromium in the form of insoluble salts can be aggregated because filtration will remove insoluble metal salts.
- Mixing corrosive wastestreams to achieve co-neutralization is permissible dilution because the corrosive characteristic is removed.
- Under the proposal the plant may be charged with impermissible dilution because neutralization to 6-9 is not achieved with acids and bases, and because EP toxic wastes were aggregated without removing soluble salts.
- The proposal would require separation of the EP toxic wastestreams, which is not possible to achieve by May 8, 1990. The plant is denied the opportunity to demonstrate that its practices are protective of human health and the environment because it currently injects nonhazardous wastes and therefore is not eligible to submit a no-migration petition.

Example E is a plant that mixes an aqueous ignitable hazardous non-wastewater with a nonhazardous wastewater. Subsequent treatment is in a surface impoundment and in a biological tank-based treatment system. The

biological unit requires as part of its process, methanol, a well known biodegradable organic and a constituent of the hazardous wastestream. The commenter noted the following:

- The proposal will require segregation and incineration of the ignitable wastestream or incineration of the sludge.
- Additional methanol or other readily degradable organic will be needed to maintain the biological treatment system.
- Incineration will generate ash requiring additional land disposal.
- Neither option is desirable; both incineration of large quantities of inorganic materials and the use of additional methanol instead of revising the generated methanol stream contradict the Agency's own pollution prevention policy.

CMA also claimed that the proposal is detrimental to innovative plants. A hypothetical example would be a plant that has an impoundment treatment system that uses very large facultative basins to biotreat wastewaters. A project is underway to modify the process to recover benzene from the wastewaters and pretreat it in order to meet the expected TC limit. According to the commenter, if the treatment does not meet the BDAT treatment standard and the wastewaters are combined with other process wastewater streams entering the headworks so that the aggregated wastestreams do not exceed the TC limit, impermissible dilution would occur under the proposed rule even though the combined flow is not hazardous.

The commenter concluded that EPA's proposal lacks a statutory foundation, and furthermore, contradicts longstanding regulatory precepts. The commenter asserted that once a characteristic waste has been rendered

nonhazardous by any means, no further hazardous waste management obligations attach to such wastes. The commenter believed that the proposal will also "cause the BDAT standards prescribed for the formerly characteristic hazardous wastes to carry through to residues from management of characteristic wastes." The commenter maintained that the proposed approach will not only create enforcement and administrative problems but will be counterproductive. The commenter asserted that the complexity of the rule will cause many members of the regulated community to inadvertently violate the rule. According to the commenter, the proposal also puts at a disadvantage those companies that take the initiative to upgrade their wastewater treatment systems.

CMA strongly urged EPA to eliminate any proscriptions of dilution that may cause a characteristic waste to exit the Subtitle C systems, especially when such a dilution occurs as part of an existing well operated system designed to comply with the Clean Water or Safe Drinking Water Acts. Finally, the commenter recommended that EPA refrain from adopting any anti-dilution constraints without further rulemaking to explore the consequences of such restraints.

Agency Response

Many of the concerns raised by the commenter have been addressed in the final rule. The Agency notes that the provisions contained in the proposed rule were not intended to discourage legitimate centralized treatment but rather to preclude centralize treatment of incompatible wastes, and that intention is maintained in the final rule. The final rule contains several modifications to the earlier dilution prohibitions in order to prevent disruption of existing legitimate wastewater treatment systems and to

facilitate integration of the LDR program with other major programs associated with the Clean Water Act (e.g., NPDES program) and the Safe Drinking Water Act (e.g., underground injection control). First, if a number of wastes are all legitimately amenable to the same type of treatment, and this method of treatment is utilized for the aggregated wastes, the aggregation step is permissible. Second, dilution as a method of treatment is permissible for non-toxic ignitable, reactive, and corrosive wastes. The Agency notes, however, that dilution used to simply reduce a toxic characteristic to below the characteristic level and serve as a substitute for adequate treatment is prohibited. Thus the Agency disagrees with the commenter's assertion that once a characteristic waste has been rendered nonhazardous by any means, no further hazardous waste management obligations attach to such wastes. This is only true for non-toxic ignitable, reactive, and corrosive wastes. The Agency notes that dilution of a high TOC ignitable non-wastewater with ignitable wastewater for centralized biological treatment is not permissible. This is because ignitable non-wastewaters containing high levels of TOC (greater than 10 percent) typically contain high levels of toxic constituents and are not amenable to biological treatment. Prohibiting dilution of such wastes is necessary to ensure appropriate treatment for all restricted wastes. In response to the specific examples provided by the commenter, the Agency notes the following:

Example A: The commenter is correct in stating that the status of the impoundment does not change and that permissible dilution has occurred. EPA reiterates that it is not applying the dilution prohibition to characteristic wastes managed in NPDES systems.

The Agency also notes that it is establishing treatment standards at the characteristic level for most wastewaters.

Example B: The commenter is correct in asserting that segregation of wastes must occur. However, this is only true when high TOC ignitable wastestreams are involved. These wastes should be segregated. Informal discussion with CMA and Dow indicated that 10 percent TOC ignitable wastestreams are segregated because biological treatment systems are not designed to accommodate such wastes. The final rule also has modified the treatability groups for ignitable wastes so that the situation where BDAT standards would not apply to the sludge derived from treatment of these wastes.

Example C: The final rule allows the practice of aggregating the these wastes as long as they are not high TOC ignitable wastes.

Example D: EPA is not applying prohibitions for Class I UIC wells in the final rule.

Example E: The final rule includes subcategories of ignitable wastes so that incineration of the sludge will not be required if at the point of generation, the ignitable non-wastewater has TOC less than 10 percent.

Summary of Comments

Envirosafe (081-pp.3,10) urged the Agency to clarify the issue of permissible dilution of a single wastestream. The commenter presented two questions: (1) Is dilution permissible when "the end result for several parameters gives you a waste where the BDAT for additional parameters were achieved?" and (2) What is the required level of treatment for chromium when a D007 waste is mixed with a small quantity of F006?

Agency Response

Too few facts are provided by the commenter in order for EPA to develop a response. Regarding the second question, because the final rule contains a treatment standard for F006, it takes precedence, unless the purpose of mixing is to avoid the lower standard for D007.

Summary of Comments

The Chemical Manufacturers Association (187-p.11) argued that permissible dilution should include dissolution that is a necessary step in a recovery process that is undertaken to achieve a treatment standard. The commenter urged EPA to clarify this issue in the final rule. A second commenter (National Paint & Coatings Association (158-p.3)) endorsed CMA comments by reference.

Agency Response

If dilution is a preliminary step to achievement of a BDAT standard then it would appear to be legitimate.

Summary of Comments

The Acrylonitrile Producers UIC Group (219-pp.6-8) objected to EPA's proposed expansion of the prohibition against impermissible dilution by requiring that aggregation of wastes for centralized treatment reduce toxicity or mobility for at least one BDAT-test constituent for each prohibited waste that is centrally treated. The commenter was concerned with the possible effects of the regulations on the disposal of certain California list constituents in wastewaters from acrylonitrile production.

Some facilities aggregate K011 and K013 wastestreams for centralized treatment. Aggregation reduces the cyanide concentration in the K011 stream, which may be above the California list levels, to a level below the California list level. The ensuing treatment, however, does not destroy cyanide. EPA proposed BDAT for K011, K013, and K014 as a mixed stream based upon an analysis that the industry practice of aggregation of the streams does not hinder and, in some cases, enhances BDAT. Based upon this knowledge, the commenter argued that expansion of the dilution rule should not prohibit aggregation of the type that exists at acrylonitrile manufacturing facilities. Indeed, the commenter believes that any such prohibition "would be manifestly unfair to operators who have relied on preamble language in the California list rule indicating that such aggregation is permissible. As explained in that preamble, certain California list constituents that are reduced in

concentration to levels below the California list threshold by virtue of aggregation for legitimate centralized treatment are not currently considered prohibited California list wastes."

The commenter concluded that the impact of the proposed rule on acrylonitrile manufacturing facilities is not clear and that facilities do not have time to evaluate their operations and arrange for alternative treatment or disposal by August 8, 1990.

Agency Response

The central concerns expressed by the commenter have been addressed in the final rule. As discussed in detail in other responses and in the final rule, the Agency is not precluding aggregation of restricted wastes to facilitate legitimate centralized treatment. The Agency has also decided not to proceed with the requirement that a reduction in toxicity or mobility of at least one BDAT constituent must take place for dilution to be considered permissible.

10.8 Other Dilution Issues

Summary of Comments

One commenter (Vulcan (128-pp.20-21)) urged the Agency to further address the dilution prohibition issue in a separate rulemaking and to remove this issue from consideration in this rule.

Agency Response

While the issues addressed in the final rule are complicated ones, the Agency disagrees with the comment that the dilution prohibition should be removed from consideration in this rule. The application of existing dilution prohibition rules (specifically 40 CFR 268.3) is central to understanding the operation of the LDR program for prohibited characteristic wastes and other prohibited wastes. Absent discussion, the existing dilution prohibition rules would still apply to prohibited wastes, but the Agency's intention regarding how to interpret them would be unclear.

Summary of Comments

PPG Industries (133-p.1-2) expressed general concern with the complexity of the hazardous waste management regulations, especially the rules and interpretation standards that are used to determine the applicability of treatments to wastestreams (i.e., derived-from and mixture rules, carry through principle, indigenous principle, and impermissible dilution). The commenter stated that a simpler system could be just as effective in

protecting human health and the environment, and suggested that a generic, environmentally protective standard be set to apply to all hazardous waste residues, regardless of how the waste was generated, mixed, or from where it was derived. Under this proposal, dilution to avoid the standard would still be prohibited.

Agency Response

The Agency believes that the modifications and guidance provided in the final rule should alleviate the concerns expressed by the commenter. The Agency acknowledges that the regulatory framework of the land disposal restrictions program is complex. Nonetheless, the Agency believes that it has designed a final rule that is both understandable and flexible, while protective fulfilling the goals of being protective of human health and the environment.

Summary of Comments

BP America (098-pp.1,6-9) argued against applying the dilution rule retroactively to California list wastes. According to the commenter, the Agency has already articulated a specific rationale for wastes potentially subject to California list prohibitions and provided examples demonstrating that such aggregation is not impermissible dilution. The proposal will shorten the timetable for implementing the prohibitions by as much as 21 months. The commenter claimed that its subsidiary, BP Chemicals has submitted no-migration petitions in a timely manner so that it could obtain approval before the prohibitions become effective. The commenter maintained that

the California list prohibitions did not set BDAT, any changes in the dilution rule should not be retroactive to the applicability of these prohibitions.

Agency Response

The Agency notes that with the Third Third rule, almost all of the California list prohibitions are superceded by more specific prohibitions and treatment standards. The application of the dilution prohibition will be the same for these wastes as for other wastes subject to land disposal restrictions. The concerns of the commenter may be addressed by the final revisions to the interpretation of the dilution prohibition.

Summary of Comments

The Synthetic Organic Chemical Manufacturers Association (108-p.19) stated that the Agency is required by Section 1006(b) of RCRA to coordinate and integrate the Subtitle C program with other existing programs, including in particular the Clean Water Act. In addition to the proposed rule's impact on companies with operations regulated under these two acts, the proposed treatment standards would be equally disruptive of operations of companies that are separately regulated pursuant to the underground injection control program. The commenter stated that the current proposal creates conflicting demands from existing environmental programs, with no demonstrable environmental benefit.

Agency Response

EPA agrees with the commenter and has refined the final rule to integrate the LDRs with the programs under the Clean Water Act and the Safe Drinking Water Act. The integration of the LDRs with Clean Water Act programs has been discussed above. The SDWA program already is well integrated with the hazardous waste rules, including the LDRs, for wastes that are hazardous. Thus, the principal integration issue is whether some facilities that generate characteristic hazardous waste but inject waste that does not exhibit the characteristic and is otherwise not hazardous at the point of land disposal should be subject to treatment requirements and the no-migration petition process.

Class I wells must inject below the lowermost geologic formation containing an underground source of drinking water (40 CFR 144.3). These wells are subject to minimum location, construction, and operating requirements set out at 40 CFR Parts 144 and 146. In addition, EPA may authorize states to administer the UIC program (40 CFR Parts 145 and 147). Whether or not wells injecting nonhazardous waste could satisfy no-migration requirements, their operators have not had any reason to believe that their operations would be subject to the LDRs and have not submitted petitions. Moreover, EPA is not convinced that the Part 148 regulations would be the more appropriate process for such petitions relating to the disposal of only nonhazardous waste.

EPA has worked closely over a period of three years with the hazardous waste injection community to develop and implement the Part 148 process. There has been no similar work with those operators of nonhazardous waste wells. EPA believes that the current no-migration process can realistically

evaluate those hazardous well petitions and prevent disruption at existing deep well facilities disposing of hazardous waste. If EPA were to apply to point of generation rule in a stringent fashion to nonhazardous wells there may be a considerable disruption at facilities that EPA generally considers safe for protection of underground sources of drinking water.

At this time, this particular application of treatment requirements is not compelling enough to outweigh the regulatory difficulties with this approach. First, EPA notes that wastewater treatment for metals does not destroy the metals but rather precipitates a sludge that would require further stabilization. If the sludge did not itself exhibit a characteristic there would be no requirement for stabilization or even a requirement that the sludge be disposed of in a Subtitle C unit.

EPA believes that deep well disposal of these metals at concentrations below the characteristic level may be as sound as the treatment option. Native formation fluid injection zones already contain substantial concentrations of these metals. The addition of more metal-bearing fluid below characteristic levels would not change this general feature of the subsurface environment. Moreover, the propensity of such metals to adhere to and thereby generally stay contained in the injection zones make the practice of deep well disposal of such constituents an environmentally sound one.

These same considerations may not apply to the segregation and treatment of organic constituents as found in listed wastes and waste that are hazardous under the new toxicity characteristic rule. EPA can evaluate these policy considerations for those wastes in the future rulemaking setting treatment standards for the wastes exhibiting the toxicity characteristic for various organic constituents.

Summary of Comments

The Synthetic Organic Chemical Manufacturers Association (108-p.16) stated that many companies rely on wastewater treatment systems that include surface impoundments. EPA's proposal would adversely affect the ability of the regulated community to use these systems, although they are critical to compliance with NPDES discharge permits under the Clean Water Act. Given the costs of managing RCRA surface impoundments, most companies have carefully designed their wastewater treatment systems to avoid storage, treatment, or disposal of hazardous wastes in surface impoundments. Under EPA's proposed rule, some wastestreams that are nonhazardous at the point of entry to a surface impoundment, but that exhibited a characteristic of hazardous waste prior to entry, would not be able to enter a surface impoundment unless treated (but not diluted) to meet the proposed treatment standards. The commenter indicated that the proposed rule, in conjunction with the anti-dilution prohibition, would disrupt the current waste management practices of many companies. The commenter is concerned not only about the cost of the proposal but also the sheer feasibility of compliance. The commenter offered several examples to illustrate the above points.

Agency Response

The problems identified by this and other commenters have been a key factor in the Agency's decision to modify the proposal to limit the application of the dilution rules to characteristic wastes. If formerly characteristic wastes managed in CWA regulated facilities are subject to the LDRs, investigating and seeking to avoid potential overlap and duplication

between the LDRs and CWA requirements, as required by RCRA Section 1006(b) would require a great deal of regulatory and policy analysis. Specifically,

- The NPDES program is quite sophisticated; it has a series of technology-based standards for the treatment of wastewater prior to discharge to the waters of the U.S. (See 33 U.S.C. 1314; 40 CFR Parts 122-125, 400-471.)
- NPDES permit writers can set requirements that reflect the nature of the treatment process, including best management practices, mass limitations in lieu of concentration-based limitations, adjustments to reflect pollutants in intake water, and conditions on internal wastestreams (40 CFR 122.44(k); 233.45(f), (g), and (h)).
- Also indirect dischargers are subject to specific dilution rules under 40 CFR 403.6(d) and (e).
- EPA would have to evaluate what conflicts if any arise from the overlap of the LDR treatment rules.
- Where States are administering the NPDES program in lieu of EPA, EPA might be forced to implement potentially overlapping requirements in conjunction with State permitting decisions.

In general, EPA would need to address a number of regulatory issues to fulfill the obligations underlying Section 1006(b) of RCRA to integrate the LDR and prevent impractical duplication with the CWA programs. The benefits of this overlap do not appear significant enough at this time to warrant such regulatory overlap. As result, EPA has modified the final rule to avoid such overlap and duplication. For example, under the final rules, dilution is a legitimate form of treatment for such wastes absent a specified method. Thus, characteristic wastewaters diluted to be below characteristic levels are not subject to the LDRs. These formerly characteristic wastes can be managed in surface impoundments that are part of existing wastewater treatment systems. In addition, the prohibition against dilution does not apply in certain cases where wastes are aggregated prior to centralized treatment. For example, dilution would be permissible where all the aggregated wastes are legitimately

amendable to the same type of treatment and this type of treatment is utilized.

Summary of Comments

The Chemical Manufacturers Association (L007- pp.9-24) noted that EPA "explicitly approved aggregation of liquid metal-containing streams for legitimate centralized treatment if the aggregated streams fall below the California list levels." In support of its argument, the commenter cited an example used by EPA to demonstrate permissible dilution. In the example, four lead-bearing wastes were legitimately aggregated so that the concentration level in the resultant mixture was below the statutory prohibition level.

The commenter believed that the present rulemaking will severely limit this practice. In particular, the commenter argued that while the test of substantial reduction of toxicity or mobility of a BDAT constituent may apply in some instances to listed wastes and wastes exhibiting the toxicity characteristic, the standard does not apply very well to other characteristic wastes. The commenter also noted, that despite these prohibitions, even in this proposal, EPA appears to recognize the appropriateness of aggregating certain wastes for centralized treatment.

CMA contended that under the present regulatory regime, for example, if aggregated wastes do not include any listed hazardous wastes and do not exhibit any characteristic of hazard at the point of aggregation, the wastes can be managed in a Subtitle D surface impoundment. Similar aggregated wastes can also be injected into Class I nonhazardous injection wells by some chemical plants. The commenter claimed that operators of centralized

treatment systems and injection wells have had no reason to anticipate that these practices would now be proscribed by the LDR program.

The commenter further argued the dilution rule will interfere with industry's ability to manage wastestreams that exhibit EPA's proposed new organic toxicity characteristic. The commenter believed that the problem is exacerbated because the organic chemicals industry is installing wastewater treatment technology to comply with effluent guidelines promulgated by EPA pursuant to the Clean Water Act. As part of these compliance efforts, plants are aggregating wastewater streams to facilitate end-of-pipe biological treatment and various in-plant treatment technologies. In sum, according to the commenter, EPA's proposed rule has startling implications for current practices, preparations for compliance with the new organic toxicity characteristic and compliance with the Clean Water Act.

Agency Response

The major issues raised by the commenter have been addressed in the final rule. The Agency notes that it has never intended to preclude the use of existing wastewater systems that are environmentally sound and fulfill the requirements of the NPDES program. Nonetheless, in order to ensure that the LDR program is smoothly integrated into the existing regulatory framework, the Agency is no longer, in most cases, applying the dilution rules to wastes discharged under the NPDES program or at all for wastes injected in a deep well under the UIC program. Furthermore, the Agency is reaffirming its policy that aggregation of wastestreams in order to facilitate treatment is permissible. These modifications are designed to ensure that restricted

wastes are treated in accordance with the LDR requirements while minimizing disruptions to existing treatment facilities.

Summary of Comments

The Environmental Defense Fund (L280-p.3) stated it would oppose any decision to weaken or delete the dilution prohibition based on concerns about the ability of certain injection well facilities to comply with restrictions on deepwell injection if dilution and aggregation are proscribed for Third Third wastes. The commenter reaffirmed its support for the proposal to prohibit dilution. The commenter agreed that this prohibition was necessary to fulfill the mandate of Section 3004(m).

Agency Response

As discussed in detail in other responses and in the final rule, the Agency is not applying the dilution prohibition to characteristic wastes injected into deepwell facilities or discharged under an NPDES permit. The Agency has modified the dilution provision in the final rule to help integrate the LDRs with the Clean Water Act and the Safe Drinking Water Act. EPA believes that the permit requirements that these waste are subjected to are sufficiently stringent to be protective of human health and the environment and that the implementation problems associated with applying the dilution prohibition to these wastes would outweigh any benefits achieved. The Agency also notes that dilution as form of treatment is not acceptable for NPDES wastes subject to specified treatment methods. The final rule is designed to ensure that characteristic hazardous waste are treated in an appropriate

manner, but in such a way so that existing treatment systems designed to meet the requirements of the CWA and SDWA are not disrupted.

11. LDR WASTES DESTINED FOR LAND DISPOSAL

Summary of Comments

Utilities Solid Waste Activities Group (204-p.20) contended that according to the language of RCRA Section 3004(m), the treatment standards under the land disposal restrictions apply only to wastes that are land disposed, and EPA may not use the LDRs as a "back door" method to impose specific treatment technologies on wastes which are not being land disposed. The commenter noted that although EPA generally adheres to the language of RCRA Section 3004(m) when the Agency discusses treatment standards expressed as treatment methods (54 FR 48420), EPA states that the prescribed methods are the only acceptable methods for handling the waste, without making clear that the specified methods are only required where the waste is destined for land disposal.

Agency Response

The commenter is correct in that LDR requirements only apply to RCRA wastes disposed of (i.e. placed in or on) in land based units.

12. GENERATOR NOTIFICATION REQUIREMENTS

Summary of Comments

Several commenters (AESF (155-p.5), AETC (083-pp.6-7), Air Products (169-p.5), American Cyanamid (144-p.8), Chemical Manufacturer's Association (L007-pp.63-65), Cyanokem (110-p.34), Department of Energy (198-p.27), Disposal Systems Incorporated (261-p.2), Ford (180-p.5), General Motors (143-p.8), Sandia National Labs (118-p.2), University of California (182-p.4), Mill Service Incorporated (089-p.4), Gibraltar (264-p.2), Olin (129-p.2), NACUBO (248-pp.3-4), OxyChem (138-pp.14-15), Kodak (L005-pp.18-20), Hazardous Waste Treatment Council (172-pp.109-113), Rohm & Haas (194-pp.39-41), ICWM (164-pp.7-8), USPCI (137-pp.2-3), API (168-p.92), National Paint & Coatings Association (158-p.1), Envirosafe (081-p.17), Waste Management, Inc. (159-pp.58-59), Monsanto (116-p.26), Browning-Ferris Industries (214-pp.35-36), and Rollins Environmental Services (124-pp.18-20)) agreed with and supported EPA's proposal to allow generators to reference the treatment standards for the individual waste being shipped to the TSD facility rather than specifying them on the accompanying notification. The commenters stated that this proposal would significantly reduce the paperwork involved in handling the waste shipments, reduce possible transcription errors, and would in no way harm the environment.

One commenter (194) stated that TSD facilities were providing forms for their generator clients with treatment standards that the generator checks off. They added that one treatment facility provided its clients with an eight page form with standards to check off. The commenter predicted that with the additional Third Third restrictions these forms will perhaps become

25 pages or longer.

One commenter (110) stated that the Agency needs to require generators to refer directly to the Part 268 regulations, rather than to transcribed numbers on the form, to minimize errors. Another commenter (081) added that it was unsure why the Agency would interpret the requirement to mean generators needed to specify treatment standards, as referencing treatment standards has been used industry-wide since the First Third land disposal restriction regulations were promulgated. Finally, one commenter (Masco Corporation (111-p.4)) suggested that the generator notification requirement itself is redundant and should be eliminated because practically all hazardous waste will soon have a land disposal restriction treatment standard.

Agency Response

The Agency has taken into account the commenters views on referencing and is amending Section 268.7 to allow generators to reference treatment standards in the notification. The Agency believes that this change will serve to reduce the paperwork burden imposed on hazardous waste generators while maintaining sufficient notification so as to be protective of human health and the environment. This change does not apply to spent solvents (F001-F005), multi-source leachate (F039) or California list wastes because these categories each contain a number of individual constituents or waste groups. For example, the waste code for multi-leachate (F039) contains 230 constituents; therefore, referencing the CFR section where the treatment standards appear would not provide information on which constituents are present in the waste. The same is true for California list wastes and spent solvents. For each of these wastes, therefore, the waste group or individual

constituent must be provided. The Agency emphasizes that the change to 40 CFR 268.7 allows referencing the treatment standards only; all other information is still required in the notification.

The Agency disagrees that notification is redundant and unnecessary. Furthermore, the Agency solicited comments on the appropriateness of referencing, not on whether to eliminate the notification requirements. EPA is not changing its position that notification requirements are necessary to ensure that restricted wastes receive the appropriate treatment.

12.1 Manifest

Summary of Comments

Several commenters (AETC (083-pp.6-7), Chemical Manufacturer's Association (L007-pp.63-65), Cyanokem (110-p.34), OxyChem (138-pp.14-15), Kodak (L005-pp.18-20), Hazardous Waste Treatment Council (172-pp.109-113), and National Paint & Coatings Association (158-p.1)) asserted that the Agency should streamline the paperwork burden further by including the notification information on the Uniform Hazardous Waste Manifest. One commenter (172) provided an example of the paperwork burden required of the generator. According to this commentator, a typical manifest package accompanying a Third shipment of ash, scrubber water and/or filter cake from a commercial hazardous waste incinerator will include 70 pages to notify the TSD facility of applicable standards and waste codes; 5 pages of waste analyses; 10 pages of pass-through certifications from generators that have partially treated mixed waste to meet specified BDAT methods but must be further tested; 2 pages for bill of lading; 2 pages of certifications; the Uniform Manifest; and 2 pages of Emergency Response information. This package, approximately 100 pages, is copied for the generator, transporter, State, and TSD facility.

Other commenters stated that after May 8, 1990, there will only be the following six categories of waste: (1) restricted waste that requires treatment, (2) restricted waste treated to performance standards, (3) restricted waste for which the treatment standard is expressed as specified technology, (4) restricted waste subject to variance, (5) restricted waste that can be land disposed without further treatment, and (6) other wastes. The commenters suggested that Sections 15 and 16, special handling

instructions and certification respectively, of the Uniform Manifest can be altered by adding the referenced six categories with a box to check the appropriate choice. One commenter (172) recommended that the Uniform Manifest should be modified to include all the necessary notification and certification information required by Part 268, as the Agency did in the waste minimization program.

Agency Response

The issue of whether notification information should be incorporated into the Uniform Hazard Waste Manifest is not an issue addressed in the Third Third rule. Although the Agency acknowledges the concerns expressed by the commenters, these issues would need to be addressed in a separate rulemaking.

Summary of Comments

Waste Management, Inc. (159-pp.58-59) suggested that the Agency approve a model notification form that incorporated the Agency's and its proposals. Rollins Environmental Services (124-pp.18-20) and Safety-Kleen (006-pp.1-5) joined the commenter (159) in recommending that the Agency clarify the regulations regarding notification and certification requirements to allow inter-company shipment of waste without notification. One commenter (006) added further that, as the composition of waste does not materially change and as no other handler receives the waste, the requirement for inter-company shipments is without merit.

Agency Response

The Agency disagrees that the notification requirements for inter-company shipments are without merit.

12.2 Against Referencing

Summary of Comments

Hunter Industrial Facilities Incorporated (112-p.2) favored the requirement that generators provide the treatment standard information for each shipment of waste. The commenter wrote that generators have the most detailed information about a specific waste, and it was appropriate for the generator to be responsible for determining its treatment standards. They further commented that the RCRA regulatory process was best served by a complete and specific statement concerning the waste at each point of transfer.

Agency Response

The Agency believes that allowing generators to reference treatment standards rather than listing each specific standard will not adversely affect compliance with the LDR standards. EPA is not relaxing any other information requirements and believes that the data requirements are sufficient for notification. The Agency notes that generators will still be required to determine the appropriate BDAT standard.

12.3 Tolling Agreements

Summary of Comments

Several commenters (Kodak (L005-pp.20-21), Chemical Manufacturers Association (L007-pp.63-65), National Paint & Coatings Association (158-p.1), American Petroleum Institute (168-p.92), and Safety-Kleen (006-pp.1-5)) supported the one-time notification and certification for small quantity generators (SQGs) subject to tolling agreements, and suggested that the Agency allow the same one-time notification and certification for other types of shipments. One commenter (L005) urged the Agency to allow the same one-time notification and certification for large quantity generators that have tolling or contractual agreements. The commenter noted that waste testing frequencies could be specified in the contracts, and the contracts and manifests for each shipment kept for the five-year retention period required in the LDR regulations. API (168) recommended that a one-time notification be allowed for intermittent generators. Intermittent generators are those whose hazardous waste generation varies between 0 and 1000 kg or more each month.

Agency Response

Based on further assessment and in light of the commenters' concerns, the Agency is amending the regulations to require a one-time notification and certification for small quantity generator shipments subject to tolling agreements. The Agency acknowledges commenters concerns that the small quantity generator (SQG) rule, specifically 40 CFR 262.20 (e), exempts SQGs (100-1000 kg/mo.) with recycling tolling agreements from the full Part 262

manifesting requirements. The Agency is promulgating this amendment because it believes that contractual tolling arrangements should provide the subsequent handlers with sufficient information on the wastes to be handled. The Agency, however, is limiting the scope of the amendment to only this category of generators. Extending this exemption to other categories of waste generators such as large quantity generators would lead to potential compliance problems. The volume, complexity, and potential variability of wastes from large quantity could lead to large volumes of hazardous waste receiving improper or inadequate treatment.

Summary of Comments

Safety-Kleen (006-pp.1-5) asserted that the Agency's requirement that a generator notification accompany each shipment of hazardous waste is burdensome and serves no useful purpose. The commenter agreed with the Agency's position that the handler of waste under a contractual agreement has sufficient knowledge of the content of the waste being handled. The commenter stated that a one-time notice for its small quantity generators, such as auto repair shops, dry cleaners, and fleet operators, would encourage beneficial recycling activities and would not discourage such activities by imposing a paperwork burden. The commenter also recommended that the notification and certification for the movement of waste between its collection centers and its centralized treatment facilities be eliminated. The commenter argued that because it was well aware of the waste's content and the composition of the waste does not materially change, and no other handler receives the waste, that the requirement for notification during inter-company transfers was without merit.

Agency Response

The Agency acknowledges the commenters concerns and is requiring one-time notification and certification for small quantity generator shipments. As stated above, the Agency is not extending this exemption to large quantity generators because of potential compliance problems.

Summary of Comments

Two commenters did not comment on the Agency's proposal for one-time notification for SQGs, but suggested one-time notification for generators in general. Fermenta ASC (280-p.2) stated that the generator should only be required to send a one-time notification that the waste is restricted. Ciba-Geigy (136-p.6) argued that the generator certification need only be sent when a wastestream is initially sent to the treatment, storage, or disposal facility, when the land disposal requirements for the specific wastestream change, or when the treatment facility requests it.

Agency Response

Again, the Agency acknowledges the commenters general concerns and is requiring one-time notification and certification for small quantity generator shipments. As stated previously, the Agency is not extending this exemption to large quantity generators because of potential compliance problems.

12.4 Miscellaneous

Summary of Comments

Kodak (L005-pp.18-20) stated that in previous land disposal regulations, the signature of an authorized representative of the facility was required on certifications. The commenter wrote that this requirement was burdensome, because it required either significant delegation of corporate authority or involved executives in the daily details of hazardous waste management. They recommended that the regulatory language be changed to allow the generator to sign necessary LDR documents.

Agency Response

The Agency maintains that this issue was addressed in a 1986 rulemaking and is not open for discussion in today's rulemaking.

Summary of Comments

Rollins Environmental Services (124-pp.18-20) and Hazardous Waste Treatment Council (172-pp.2-3) asserted that the treatment group information required on the notification should be limited to the two groups referenced by the Agency, wastewater and non-wastewater, and to any EPA waste categories that involve different treatment standards or methods. One commenter (172) added that no other treatability group identification was required.

Agency Response

The Agency believes that limiting to treatment group information on the notification to wastewater and non-wastewater would be inadequate and likely result in inappropriate or deficient treatment. As stated in an earlier response, certain waste categories (e.g., multi-source leachate) contain numerous constituents or waste groups which would go unidentified and in some cases untreated.

Summary of Comments

Three commenters (Rollins Environmental Services (124-pp.18-20), Kodak (L005-pp.18-20), and Hazardous Waste Treatment Council (172-pp.2-3)) commented that requiring that a notification include waste analysis data, where available, should be amended. One commenter (L005) stated that waste analysis is already required by the TSD facility. Typically, the TSD facility, before agreeing to manage the hazardous waste, receives from the generator a waste profile sheet that includes the results of an analysis of the waste and a sample of the waste. Results of the TSD facility's testing of the waste are added to the waste profile sheet. Because these records are kept by both the generator and TSD facility, the commenter stated that requiring this information with every shipment is duplicative. HWTC stated that the TSD facility evaluates the generator's waste before agreeing to manage it. The generator, added this commenter, should only be required to provide laboratory information whenever the waste-generating process changes, or once each year. Another commenter (124) argued that the waste analysis information was already submitted to the TSD facility as required by Section 264.13 and 265.13, and

that it was duplicative to submit this data with every shipment.

USPCI (137-pp.2-3) commented that because TSD facilities often have to call a generator and ask them to correct their notification forms, TSD facilities must already know the content of the generator's waste. They added that in no case does the owner or operator of the TSD facility wait until he or she reads the accompanying notification to determine the contents of the waste.

Agency Response

The Agency believes that detailed and regular notification is needed to ensure complete and continuous compliance with LDR restrictions. The anecdotal evidence provided by the commenters does not demonstrate that TSD facilities are always and completely aware of the contents of the wastes they receive.

Summary of Comments

Monsanto (116-p.26) encouraged the Agency to amend regulations to allow generators to reference previously submitted data in the notification.

Agency Response

As stated in the earlier response, only specific treatment standards can be referenced. The Agency is not relaxing other information requirements and believes that allowing generators to reference previously submitted data will lead to a deterioration in the accuracy and quality of notifications.

Summary of Comments

USPCI (137-pp.2-3) argued that the Agency needs to clarify Section 268.7 regulations and requirements for the generator and TSD facility. Specifically, the commenter wants EPA to clarify the regulations so they provide that: (1) the land disposal facility is not required to keep notifications that it does not receive; (2) the land disposal or treatment facility may accept shipments that are not accompanied by properly completed notifications and certifications; (3) the requirement for notification and certification rests solely on the originator of the shipment; and (4) the treatment facilities and generators are required to maintain records of all notifications and certifications provided with waste shipments for a period of five years.

Agency Response

For the first issue, the Agency requires the generator and TSD facility to keep notification pursuant to Section 268.7. Second, Part 268 requirements do not impose a prohibition on the acceptance of shipments without notification and certification, but requirements under Sections 264.13 and 265.13 on waste analysis may have such restrictions. Third, each person who handles a shipment has obligations regarding notification and certification. Finally, generators are required to keep records for five years, while owners and operators are required to keep records until the facility closes, pursuant to Sections 264.73 and 265.73.

13. STORAGE PROHIBITION

Summary of Comments

Several commenters (Allied-Signal (267-pp.55-56), Arizona Public Services Corporation (L004-p.1), Association of State and Territorial Solid Waste Management Officials (157-p.4), Browning-Ferris Industries (214-pp.32-35), Dow (179-pp.35-37), Kodak (L005-pp.17-18), General Motors (143-pp.7-8), Halogenated Solvent Industry Alliance (166-p.8), Laclede Steel Company (134-pp.1-5), Phillips Petroleum (080-pp.5-6), Utilities Solid Waste Activities Group (204-pp.34-36), Waste Management, Inc. (159-pp.52-55)) supported EPA's proposal only to apply the storage prohibition to the storage of restricted waste if storage is surrogate disposal, or if storage is otherwise undertaken for purposes of evading a land disposal prohibition. Two commenters (159 and 134) maintained that EPA's literal interpretation placed too much emphasis on the clause "accumulation of such quantities of hazardous waste" and not enough emphasis on the clause "to be necessary to facilitate proper recovery, treatment, or disposal." One commenter (157) suggested that EPA expand the language of Section 268.50 to identify more clearly acceptable reasons for storage. Most commenters cited situations in which the literal interpretation prohibits otherwise legitimate storage.

Agency Response

Although many commenters supported the proposed broadening of the allowable basis for storing prohibited wastes, the Agency has determined that these commenters did not offer specific, workable definitions that would

result in clearly defined boundaries of the Agency's proposed change. Without objective criteria for defining the limits of allowable storage, EPA believes the reinterpretation in the proposed rule would be difficult to implement and enforce. The Agency is retaining, therefore, its longstanding interpretation of the storage prohibition, which it codified in 40 CFR 268.50.

The Agency disagrees with the commenters who maintained that the interpretation of storage places too much emphasis on the clause "accumulation of sufficient quantities of hazardous waste." EPA believes that the Congressional intent behind the storage prohibition is related to the quantity of waste that is sufficient to facilitate proper treatment, recovery, or disposal and an expectation that wastes subject to the LDRs will be expeditiously managed. Moreover, a clear purpose of the storage prohibition is to ensure that large quantities of waste that are otherwise able to be treated are not stored to circumvent any of the land disposal restrictions, thus posing threats to human health potentially equivalent to the land disposal of untreated waste.

Summary of Comments

Several commenters (American Petroleum Institute (168-pp.88-91), Association of State and Territorial Solid Waste Management Officials (157-p.4), Chemical Manufacturers Association (L007-p.61), Kodak (L005-pp.17-18), Hazardous Waste Treatment Council (172-p.130), Horsehead Resources (199-pp.6-8), Monsanto (116-p.25), Rohm and Haas (194-pp.43-46), and Westinghouse (167-p.3)) concurred with EPA's proposal to allow restricted waste during a back-up at an incinerator. Commenters supported a broad interpretation that permits storage of restricted waste during a back-up at an incinerator or a treatment

facility when it is for the purpose of accumulation of sufficient quantities to facilitate proper recovery, treatment, or disposal. Two commenters (L007 and L005) asserted that EPA should allow storage of restricted wastes during legitimate down-time at an incinerator. Similarly, another commenter (168) argued that EPA should allow storage during both a back-up and operational difficulties at a TSD facility. According to the commenter, if EPA bans such storage, facilities must develop complex contingency plans for unforeseen circumstances which prevent mandatory and immediate removal of wastes. The commenter also maintained that the immediate and mandatory removal of wastes without plans for ultimate treatment or disposal increases the risk of accidents and human exposure. Two of the commenters (168, 116) claimed that Congress did not intend to ban storage for short periods of time due to operational difficulties or back-ups at TSDFs.

Agency Response

Having proposed this scenario as one in which a different interpretation of the storage prohibition might be appropriate, the Agency understands the issues associated with the circumstances described by the commenters. The Agency is concerned, however, that because the commenters did not provide workable limits that would define the extent of "permissible storage" under this alternative, its implementation might result in long-term storage that might otherwise circumvent the LDRs and might pose risks to human health that are potentially equivalent to those from the land disposal of untreated hazardous wastes. Therefore, the Agency is retaining its current interpretation of the storage prohibition, and will continue to apply the current criteria which allows facilities to "accumulate such quantities of

hazardous wastes as necessary to facilitate the proper treatment, recovery, or disposal." In the situations raised by the commenters, the Agency is retaining the interpretation of the storage prohibition which appeared in Section III E, p. 40583 of the November 7, 1986, solvents and dioxins rule. This section states that storage resulting from back-ups at treatment or recovery facilities, operational difficulties, or from repairs and maintenance, is not considered permissible storage.

The Agency points out that in this scenario, EPA assumes the burden of proving that storage has occurred for inappropriate reasons for up to one year; after one year the burden shifts to the facility to show that storage does not violate the prohibition.

In response to the commenter who asserted that complex contingency plans will be required if EPA retains the current interpretation of storage, the Agency points out that facility contingency plans are appropriate for many unforeseen circumstances, as the facility is obligated to manage wastes in a manner that is protective of human health and the environment. The storage prohibition interpretation does not add any additional requirements to this mandate.

Summary of Comments

Several commenters (Association of State and Territorial Solid Waste Management Officials (157-p.4), Disposal Systems (261-p.3), Hazardous Waste Treatment Council (172-p.130), Horsehead Resources (199-pp.6-8), Monsanto (116-p.25), and Waste Management, Inc. (159-pp.52-55)) agreed with EPA's proposal to adopt an interpretation of the storage prohibition that allows storage where a treatment facility treats waste to a level that does not meet

the treatment standard and then stores the waste before treating it again. One commenter (159) contended that such an interpretation is consistent with Congressional intent. The commenter suggested that EPA modify the language of Section 268.50 to allow the accumulation of restricted wastes in tanks and containers as necessary pending proper recovery, treatment, and disposal, and as necessary to ensure proper management in accordance with the land disposal restrictions. Similarly, another commenter (116) noted that storage while treatment is being arranged, and storage after partial treatment to achieve BDAT (but before final treatment) are absolutely required actions. One commenter (261) claimed that storage of wastes or partially treated wastes is part of a normal course of business. The commenter also asserted that EPA must allow adequate time for storage when a facility is awaiting available capacity in a particular treatment unit or when the waste is off-specification and must undergo additional treatment.

Agency Response

The Agency understands many of the issues associated with the circumstances described by the commenters. Again, the Agency is concerned that commenters did not provide workable limits for temporary storage between treatment processes. The "permissible storage" under this scenario might circumvent the LDRs, posing risks to human health equivalent to those from the land disposal of untreated hazardous wastes. Therefore, the Agency is retaining its current interpretation of the storage prohibition.

Summary of Comments

Rohm and Haas (194-pp.43-46) supported an interpretation of the storage prohibition that permits the storage of wastes during administrative delays such as sampling, shipment scheduling, and permitting. The commenter indicated that administrative delays are often caused by State laws regarding receipt of out-of-State wastes and delays in permitting and permit modifications. In addition, the commenter claimed that sampling, State approval of importation, establishment of receipt dates, and transportation arrangements require six to eight weeks. During such time, the waste must be stored with the generator. Chemical Manufacturers' Association (L007-p.61) and Kodak (L005-pp.17-18) thought that legitimate storage might include storage of treatment residues while analyses to assure compliance with LDRs are conducted. Monsanto (116-p.25) supported an interpretation that allows storage while treatment is arranged.

Agency Response

The Agency disagrees in part with the commenters that urged the adoption of an interpretation that specifically would permit storage during periods of administrative delay. Again, commenters proposed no workable limits or definitions that would allow the Agency to develop objective criteria by which storage during administrative delays would not result in storage to circumvent the LDRs.

Summary of Comments

Several commenters (Chemical Manufacturers Association (L007-p.61), Kodak (L005-pp.17-18), Rohm and Haas (194-pp.43-46), and Waste Management, Inc. (159-pp.52-55)) supported an interpretation that allows the storage of restricted wastes during verification testing to ensure that the waste and its residues comply with appropriate treatment standards. Two commenters (159, 194) argued that verification testing is necessary for the proper recovery, treatment, and disposal of restricted waste. One commenter (159) argued that Congress could not have intended to preclude storage after the waste had been sent off-site to a treatment facility and while the treater was managing the waste to ensure compliance with the treatment standard. Thus, according to the commenter, the literal interpretation serves to frustrate the goals of the land disposal restrictions. The commenter recommended a modification to the language of Section 268.50 to allow storage of waste for the purpose of accumulation of such quantities as is necessary for the proper recovery, treatment, or disposal, and to allow storage of wastes as necessary to ensure proper management in accordance with the land disposal restrictions.

Agency Response

The Agency position maintains that storage is permissible only for the purposes of accumulating sufficient quantities for treatment.

13.1 Storage and Capacity

Summary of Comments

Several commenters (Allied-Signal (267-pp.55-56), APS (L004-p.1), Browning-Ferris Industries (BFI) (214-pp.32-35), Chemical Manufacturers Association (L007-p.61), Dow (179-pp.35-37), Kodak (L005-pp.17-18), Monsanto (116-p.25), National Paint & Coatings Association (153-p.1), Rohm and Haas (194-pp.43-46), Sandia National Laboratories (118-p.4), Department of Energy (198-p.23 and 260-p.2), University of California (182-p.4), Utilities Solid Waste Activities Group (204-pp.34-36), and Westinghouse (167-p.3)) supported an interpretation of the storage prohibition that would allow storage of restricted wastes when inadequate or no recovery, treatment, or disposal capacity exists for the waste. The commenters generally argued that storage of restricted wastes for which inadequate disposal capacity exists is not for the purposes of evading the land disposal restrictions but is the only alternative available to manage these wastes. Commenters (L007 and L005) cited as examples dioxin and pesticide wastes. Furthermore, one commenter (214) claimed that a growing pattern among treatment and disposal facilities to not accept waste due to the impact of the BDAT level on residues further reduces treatment and disposal capacity. The commenter further suggested that storage capacity will become available only after significant amounts of waste exist in storage. These commenters suggested that EPA modify the language of Section 268.50 and the proposed language to allow the storage of such wastes.

Agency Response

Although the Agency recognizes the unique LDR and RCRA management problems of dioxin and certain pesticide wastes (e.g., those that have been banned), the Agency disagrees with those commenters that suggested an interpretation of the storage prohibition that would allow the storage of restricted wastes in general when inadequate waste management capacity exists. The Agency has the authority to issue national capacity and case-by-case extensions to the effective dates of the LDR restrictions, and believes that these are more appropriate mechanisms than the storage prohibition to address the issue of waste management capacity. Moreover, each of the extensions available carry with them specific restrictions on the management of waste during the period for which the extension is in effect. The Agency believes that these extensions are more appropriate than a general storage standard for addressing the management of wastes.

Finally, in response to the commenter that asserts that facilities may not be accepting wastestreams thus affecting the available volume of treatment capacity, although certain facilities may not accept certain waste codes, EPA's capacity analyses show an increasing not decreasing volume of treatment for most waste codes. Therefore, EPA disagrees that changes in the storage prohibition are needed to address this situation.

Summary of Comments

Laclede (134-pp.1-5) contended that the application of the storage prohibition prohibits the accumulation of sufficient quantities of K061 waste to make the development of their on-site HMTR facility cost-effective, because

the prohibition would compel the facility to stabilize and landfill a portion of their waste. The commenter argued that Congress did not intend that the storage prohibition impede the development of new capacity.

Agency Response

EPA believes that this issue is better dealt with in the context of specific circumstances and will contact the commenter directly to verify the precise facts.

13.2 Storage and Mixed Waste

Summary of Comments

Several commenters (Allied-Signal (267-pp.55-56), Browning-Ferris Industries (BFI) (214-pp.32-35), Sandia National Laboratories (118-p.4), Department of Energy (198-p.23 and 260-p.2), Utilities Solid Waste Activities Group (204-pp.34-36), Westinghouse (167-p.3), and Phillips Petroleum (080-pp.5-6)) urged EPA to allow continued storage of restricted waste while recovery, treatment, or disposal capacity for (radioactive) mixed waste is currently under development. Commenters mentioned that EPA should exempt from the storage prohibition the storage of mixed wastes containing a solvent or California List Waste that are not covered by a national capacity variance. One commenter (204) claimed that generators forced to store mixed waste on-site for the sole reason that they lack any legal alternative would be caught in a situation in which no course of action would be acceptable. According to another commenter (193), Congress did not intend to place generators in a non-compliant situation if there were no treatment options available for their wastes. One commenter (204) argued that if EPA considered continued storage of restricted wastes because of a back-up in an incinerator to be legitimate, then EPA should also consider continued storage of mixed waste due to across-the-board unavailability of any legally acceptable treatment or disposal capacity.

In addition, DOE claimed that because of State imposed limitations or restrictions on the acceptance of out-of-State mixed waste, capacity must be developed on-site. The commenter argued that mixed waste must therefore be stored while managers obtain funds for research and development, design, and

construction of facilities; to develop treatment technologies for mixed waste; and to construct and permit on-site treatment facilities. In addition, the commenter claimed that storage of mixed wastes is required to facilitate the development of technologies for residues resulting from treatment of a restricted waste. The commenter cited an OTA report ("Partnership Under Pressure: Managing Commercial Low-Level Radioactive Waste") that suggested current regulations on mixed waste will force generators to store such wastes illegally. Another commenter (080) claimed that construction and permitting of facilities takes more than the twelve months that the specifications of the storage prohibition allow. The commenter maintained that Congress did not intend for Section 3004(j) to prevent companies from designing, permitting, and operating their own environmentally responsible waste treatment and disposal facilities for restricted wastes, and argued that as long as storage takes place in a controlled, permitted storage area, it will have no adverse impact on either human health or the environment.

Agency Response

The Agency recognizes the unique nature of managing RCRA spent solvent, dioxin, and California list wastes that are mixed with radionuclides (i.e., "mixed wastes") as well as other issues regarding hazardous waste, and will issue a separate notice announcing its resolution of this matter in 90 days. The prohibition in no way encourages management practices that do not facilitate the "proper" treatment, recovery, or disposal of wastes. That is, a facility is not compelled to take any actions that are not proper, and fully protective of human health and the environment.

Summary of Comments

Department of Energy (198-p.23 and 260-p.2) claimed that storage of wastes is legitimate when storage is a necessary component in the proper management of the waste. The commenter noted that long-term storage of mixed wastes is, in many instances, required to allow for radioactive decay and to reduce exposure of workers during subsequent treatment of the waste.

The commenter also maintained that EPA should allow storage during the retrieval of mixed waste, such as transuranic wastes, from storage and processing to a form less hazardous to human health and the environment which would constitute active management under the present interpretation of the LDR storage prohibition.

Agency Response

The Agency believes that this comment is most appropriately addressed under the identification of BDAT for mixed wastes.

13.3 Additional Storage Options

Summary of Comments

Several commenters (Allied-Signal (267-pp.55-56), Department of Energy (DOE) (193-p.23), Dow (179-pp.35-37), Rohm and Haas (194-pp.43-46), and Utilities Solid Waste Activities Group (204-pp.34-36)) proposed options to regulate the storage of restricted waste for which inadequate or no recovery, treatment, or disposal capacity existed in lieu of adopting the broader interpretation. The commenters suggested that EPA could interpret storage of restricted wastes for which inadequate or no capacity existed as accumulation necessary for the purposes of proper recovery, treatment, and disposal. Thus, such storage would be excluded from the storage prohibition under the literal interpretation. Alternatively, one commenter (193) suggested EPA grant case-by-case storage allowances. The allowances would permit storage as long as facilities could demonstrate a lack of available capacity through auditable records or written demonstrations. According to the commenter, such allowances would also assure that wastes in storage are properly treated and stored rather than disposed of. Another commenter (267) recommended that EPA grant a categorical treatability variance to mixed wastes. Commenters also suggested that EPA could use administrative discretion to exempt unusual situations from otherwise broad prohibitions. According to one commenter (194), EPA has sufficient safeguards against sham storage in requiring storage only in tanks and containers and in the presumption that storage is legitimate for one year. Another commenter (179) claimed that requirements for storage under RCRA Subparts I and J already provide adequate protection to human health and the environment.

Agency Response

The Agency reiterates its disagreement with commenters who proposed reinterpreting the storage prohibition to address circumstances where inadequate recovery, treatment, or disposal capacity is available. The Agency believes that case-by-case and national capacity extensions are the appropriate means to address these circumstances. Moreover, each of these extensions includes specific requirements for managing wastes during the period of the extension.

The Agency also disagrees with the commenter that requested that the Agency grant case-by-case storage allowances. The Agency points out that it currently implements the storage prohibition on a case-by-case basis to determine if storage consistent with 40 CFR 268.50 is occurring. The Agency does not see any reason to establish a case-by-case storage allowance. The Agency points out that treatability variances are available for the treatment of mixed wastes if a facility can demonstrate that well-designed, well-operated treatment of the wastes will not achieve the promulgated treatment standards.

As for the storage requirements in Subparts I and J already providing adequate protection of human health and the environment, the Agency reiterates Congress' intent to establish a program to treat expeditiously all wastes that will be land disposed. The Agency believes that although the current regulations are adequate to protect human health and the environment during storage activities, storage is not an appropriate long-term management option for most hazardous wastes. Therefore, it is not appropriate to equate the short-term protection that results during proper storage with that required for long-term protection when wastes are ultimately treated or disposed of.

13.4 Storage and Variances

Summary of Comments

Arizona Public Services Corporation (L004-p.1), Allied-Signal (267-pp.55-56), and Browning-Ferris Industries (214-pp.32-35)) contended that the two-year capacity variance allows insufficient time for the development of adequate recovery, treatment, or disposal capacity for some restricted wastes. In addition, Dow (179-pp.35-37) claimed that the four years provided by a combination of a capacity variance and two case-by-case extensions may not be sufficient to develop adequate capacity.

Agency Response

The Agency believes that the management standards in effect during the period in which the Agency is reviewing whether to issue a variance are clear and do not require further comment. The Agency is expeditiously reviewing all petition requests that it receives.

Summary of Comments

Browning-Ferris Industries (BFI) (214-pp.32-35) and Department of Energy (198-p.23 and 260-p.2) claimed that EPA must address the storage of wastes for which decisions on variance petitions are pending. The commenters suggested that EPA speed up the variance process.

Agency Response

The Agency believes that the management standards in effect during the period in which the Agency is reviewing whether to issue a variance are clear, and do not require further comment. The Agency is expeditiously reviewing all petition requests that it receives.

Summary of Comments

Dow (179-pp.35-37) proposed that EPA should exempt storage of wastes when an owner or operator of a treatment facility is waiting for a permit or authorization to handle a material generated in small quantity relative to the throughput of the treatment facility. The commenter also recommended unprohibited storage of up to 90 days to allow for deliberate shipping of material from generators of small quantities of waste. The commenter suggested EPA clarify that any tank having a flow equal to the amount of material stored in the tank or the volume of the tank begins a new 90-day period of unprohibited storage. The commenter suggested that facilities storing wastes for greater than 90 days should prepare a written justification that can be requested by EPA. The commenter concurred with EPA's approach to allocating the burden of justification.

Agency Response

The Agency disagrees that this form of storage should be exempt from the storage prohibition. There is clear Congressional history that wastes must not be stored to circumvent the LDRs, and that wastes destined for treatment

or disposal should be managed expeditiously and in a manner protective of human health and the environment.

Summary of Comments

RSR Corporation (162-p.10), Schuylkill Metals Corporation (082-pp.2-3), and Secondary Lead Smelting Association (161-p.13)) contended that EPA should exempt the storage of lead-acid battery components, spent batteries, other furnace feed materials, etc., at secondary metal recovery facilities from RCRA regulations. The commenters maintained that these materials are not solid wastes, but are raw materials in their smelting operations. Two of the commenters (162, 161) cited American Mining Congress v. EPA (op. cit.) under which the court ruled that such raw materials are not solid waste. One commenter (161) also claimed that EPA has recognized that lead-bearing materials such as drosses are by-products which are exempt from RCRA regulations. Two commenters (082, 161) further noted that piles of raw materials at primary lead smelting facilities are exempt from RCRA regulations, and that EPA has issued a guidance document for secondary lead smelters to exempt piles of these materials from regulations as a solid waste.

One commenter (161) asserted that prohibiting the storage of lead-acid batteries and other lead-bearing materials discourages the recycling of these materials, and therefore, runs contrary to the intent of RCRA. A commenter (162) claimed that Congress did not intend Section 3004(j) of RCRA to impede the accumulation of materials that are destined for immediate beneficial recovery. Another (082) maintained that application of the storage prohibition to piles of lead battery components runs contrary to the intent of Congress since Congress intended to only prohibit surrogate disposal and

storage to evade land disposal restrictions, and the lead battery component piles is not disposal. According to the commenter, storage of lead-acid battery components in tanks and containers is economically prohibitive and would not provide additional protection of human health or the environment. Another commenter (161) further maintained that placement of spent batteries, etc. in storage areas at lead recycling facilities poses relatively insignificant risk compared to alternative improper disposal.

Agency Response

The Agency considers these materials solid wastes unless they are granted a variance under Sections 260.31-32 which provide the standards and criteria for variances from classification as a solid waste. Therefore, this issue is not open for discussion in this rulemaking. For the second issue regarding Section 3004(j), the Agency agrees that this provision does not apply in instances where materials are accumulated and destined for immediate beneficial recovery. Finally, the Agency has decided to issue a two-year capacity variance for lead-acid battery components.

Summary of Comments

Horsehead Resources (199-pp.6-8) expressed concern that EPA would prohibit the storage of their K061 waste, a hazardous waste which they use as a raw material in their recycling operations. The commenter indicated that because the inflow supply of waste does not always match the rate of processing of the waste, the commenter must temporarily store the waste until idle processing capacity becomes available. The commenter argued that EPA

should not require a storage facility for recycling to meet any restrictions other than those specified in its permit. The commenter further contended that EPA would violate the intent of Congress by prohibiting storage in a permitted facility at an ongoing recycling operation, which represents legitimate form of proper recovery, treatment, or disposal. The commenter supported a limit on legitimate storage of more than one year after the cessation of processing or treatment operations in which the material was originally processed. The commenter maintained that this limit allows a facility time to find alternate treatment and recycling options in the event of a shutdown, and prevents the prohibition of storage during a temporary short-term shutdown.

Agency Response

EPA believes that this issue is better dealt with in the context of specific circumstances and will contact the commenter directly to verify the facts and context of the situation.

Summary of Comments

American Chemical Society (029-p.5) disagreed with EPA's definition of solid waste as it applies to the resale and exchange of surplus chemicals and suggested that EPA specifically exclude these chemicals from solid waste regulations. The commenter claimed that resale or trade of chemicals among laboratories and vendors is a form of recycling. However, the commenter argued that EPA discourages the recycling of surplus chemicals through resale through the requirement that at least 75 percent of an accumulated material be

recycled to no longer be considered a solid waste. The commenter suggested that any reagent chemicals and solvents in their original condition and original form no longer be considered solid wastes when transferred or exchanged under the following conditions: (1) when sent to another laboratory, in the same form; (2) when returned to the original manufacturer for recommercialization, in the same form; (3) when sent to private or commercial reagent chemical exchange services for future laboratory use, in the same form; or (4) when being stored, transported, or accumulated for future use or redistribution, as described above. The American Council on Education and the National Association of College and University Business Officials (248-p.3) supported the commenter's proposal to allow storage for purposes of redistribution and recycling.

Agency Response

The Agency definition of solid waste is found in 40 CFR 261.2. Table 1 of that section stipulates that commercial chemical products listed in 40 CFR 261.33 are not considered solid wastes if they are applied to the land and that is their ordinary manner of use (40 CFR 261.2(c)(1)(B)(ii)). Section 261.2(d) lists materials considered solid wastes when they are recycled in any manner (i.e., F020-F023, F026, and F028), unless they are used as an active ingredient to make a product at the site of generation. The Agency refers the commenters to this section for the complete list of criteria used to add wastes to the solid waste category.

Summary of Comments

Aluminum Association (093-p.1) and RSR Corporation (162-p.10) argued that EPA should extend the Section 3004(j) exemption to other forms of storage besides storage in tanks and containers. One commenter (093) mentioned that EPA should allow storage of solid hazardous waste prior to treatment if it is in a secure enclosed building.

Agency Response

The Agency disagrees with these commenters that the Section 3004(j) exemption should be extended to other types of units, particularly to enclosed buildings. RCRA activities regulate cradle-to-grave management of hazardous wastes to ensure the protection of human health and the environment. The Agency does not believe that simply requiring storage in a secure, enclosed building necessarily meets this requirements without more specific management standards in place. For example, improper storage of wastes in an enclosed building could result in extensive threats to human health and the environment (to workers in or around the building, or through leaks that may breach the boundaries of the building e.g., liquid or gaseous migration).

Summary of Comments

The American Council on Education and the National Association of College and University Business Officials (248-p.3) supported an extension of RCRA's 90-day limit for storage of hazardous waste for the purpose of accumulation. The commenter maintained that institutions generating small

quantities of waste could accumulate greater quantities, thereby avoiding mixing wastes in lab packs and the costs associated with the shipment of partially filled lab packs.

Agency Response

The Agency believes that these commenters are referring to the general 90-day generator storage prohibition limit, not to the storage prohibition specified under the LDRs. Therefore, this issue is not appropriately addressed in this section.

Summary of Comments

Laclede (134-pp.1-5) objected to the literal interpretation's connection between purpose of storage and quantity stored. The commenter indicated that the definition of storage "solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal" lacked concreteness. Facility operator/owners will be uncertain whether the prohibition applies to their storage until an enforcement action occurs and a decision is made on the purpose of the storage.

Agency Response

In the proposed Third Third rule, the Agency provided the opportunity for commenters to provide suggestions for concrete guidelines under which an alternative interpretation of storage might be promulgated; the Agency did not

receive adequate specific suggestions. Therefore, the Agency is retaining the current interpretation of storage.

Summary of Comments

Halogenated Solvent Industry Alliance (166-p.8) recommended that EPA rephrase its proposal to permit storage where prohibited wastes are stored in tanks or containers pending "utilization of proper recovery, treatment, or disposal capacity." The commenter suggested EPA construe the wording to refer to the use of treatment, recovery, or disposal capacity to achieve, or as part of the process of achieving, applicable standards by reducing the toxicity or mobility of one or more of the hazardous constituents. Also, the commenter supported EPA's temporal limit on the burden of proof.

Agency Response

Again, the Agency disagrees that storage and the availability of treatment capacity are necessarily linked. The Agency has mechanisms (i.e., case-by-case and national capacity extensions) to respond directly to the circumstance where adequate capacity is not available.

13.5 Temporal Limits for Storage

Summary of Comments

Several commenters (Allied-Signal (267-pp.56-57), American Petroleum Institute (168-pp.88-91), Browning-Ferris Industries (214-pp.32-35), Chemical Manufacturers Association (L007-p.61), Dow (179-pp.35-37), and Society of Organic Chemical Manufacturers (108-pp.33-35)) disagreed that EPA should impose a temporal limit on legitimate storage. One commenter (168) suggested that a temporal limit is infeasible and EPA should amend the storage prohibition to allow generators and owners/operators a reasonable amount of time to take appropriate action if operational problems and/or back-ups at TSD facilities unique for each situation prevent the removal of stored wastes. The commenter noted that if EPA deemed that a temporal limit was necessary, EPA should adopt the "burden of proof" concept in which facilities are required to maintain records that justify delays in removing waste. Another commenter (108) believed that due to the wide variety of circumstances and time frames of legitimate storage, establishment of specific time periods to define legitimate storage is inappropriate. Another commenter (L007) maintained that a temporal restriction is inappropriate since generators must already demonstrate that storage is for a legitimate purpose after one year.

Agency Response

The Agency disagrees with the many commenters who argued that there should not be a temporal time limit on storage, and that a standard of a "reasonable time period" ought to be imposed. Without a temporal limit, EPA

believes that it would be very difficult to enforce the storage prohibition. Moreover, the lack of a temporal limit could interfere with the clear Congressional mandate to prohibit long-term storage and to treat wastes destined for land disposal expeditiously.

The Agency agrees with the commenter who said that the Agency should adopt a burden of proof approach to implementing the storage prohibition. The Agency has adopted a burden of proof approach to implementing its current interpretation of legitimate storage, and believes that such an approach is the best way to implement the program. The Agency wishes to point out that impermissible storage is never allowed under the LDRs, even within the first year of storage. The Agency has the authority to demonstrate the storage is not appropriate.

Summary of Comments

Westinghouse (167-p.1) supported the exemption from the storage provision of storage that occurred prior to the effective date of the provision. The commenter urged EPA to clarify that the storage provision does not apply in the case where wastes are transferred among storage units, but were originally placed in storage prior to the effective date of the storage provision.

Agency Response

The Agency disagrees with the commenter's assertion that wastes that are originally stored prior to the effective date of an LDR restriction, then are transferred to a different storage unit after the effective date are not

subject to the storage prohibition. The Agency has consistently asserted that the LDRs do not apply retrospectively, i.e., to wastes treated, stored, or disposed of prior to the effective date of the LDRs. However, once wastes are handled in a manner constituting treatment, storage, or disposal after the effective date, all of the applicable LDR prohibitions would have to be met, including any treatment standards.

Summary of Comments

Association of State and Territorial Solid Waste Management Officials (157-p.4) requested EPA to clarify whether the one year limit for justifying legitimate storage is renewable when wastes are transferred from a generator to a treatment facility or from facility to facility. The commenter mentioned that they were not clear whether each owner or operator may store the waste for one year or whether the total time of storage may only be one year.

Agency Response

Storage of restricted hazardous wastes only may occur only to accumulate sufficient quantities to facilitate the proper treatment, recovery, or disposal of the waste. The one-year time period is only the period in which the Agency has the burden of proving that storage is occurring in violation of this standard. At no time may storage of wastes occur for reasons other than those specified in the regulation.

The one year limit for justifying legitimate storage is not renewable when transferred from generator to treatment facility or from facility to facility.

Summary of Comments

Hazardous Waste Treatment Council (172-p.130) and Rollins Environmental Services (124-pp.20-21) supported EPA's suggested approach if it is limited in time to no more than one year, as is (in effect) the current Section 268 storage limitation.

Agency Response

Because the Agency did not get sufficient workable guidelines from commenters on implementing the approach to storage suggested in the proposed rule, the Agency is retaining its original interpretation of the storage prohibition.

Summary of Comments

Waste Management, Inc. (159-pp.52-55) suggested EPA that expand a facility's ability to store restricted waste by allowing an owner/operator to expand storage capacity under the Temporary Authorization or Class I procedures under HSWA authority.

Agency Response

The Agency notes that in 1988 it evaluated and altered the system for amending permits, and believes that the Class system adopted at that time is appropriate for LDR storage issues raised by the commenter. Under this rule,

a permittee may apply for a Temporary Authorization if storage activity is in response to the land disposal restrictions. Although there are no storage capacity increases identified as a Class 1 modification, the Class 2 procedures offer a streamlined process and specified decision time-frames. Furthermore, a permittee may request that a modification not specifically listed in Appendix I be considered a Class 1 modification. The Agency believes that the existing modification procedures offer sufficient flexibility to address facility needs, on a case-by-case basis.

14. WASTE ANALYSIS/TESTING

14.1 Support of First Approach

Summary of Comments

Several commenters (Envirosafe (081-pp.4-5,16-17), Gulf Coast Waste Disposal Authority (151-p.27), General Motors (143-p.8), and Hunter Industrial Facilities (112-p.2)) supported the Agency's first approach to waste analysis, which would allow a treatment, storage, or disposal (TSD) facility to rely upon generator testing if specified in the facility's waste analysis plan (WAP). One commenter (081) argued that because current regulations require a generator to be responsible for its waste from generation through to disposal, it is inappropriate to impose additional testing requirements on the disposal facility. Moreover, the commenter said that a disposal or treatment facility should not be required to test for any parameter not originally present in the generator's waste analysis. The commenter noted that the requirement to test for additional parameters may require disposal facilities to amend their WAPs and expressed concern that this change would occur inconsistently through the permitting process instead of consistently through a rulemaking process. The commenter also urged the Agency to amend Sections 261.21(b) and 262.11(c) to require generators to identify the process codes and any or all characteristic codes applying to the generator's waste (instead of being allowed to stop identification if the waste is a listed waste). If EPA makes this amendment, the commenter urged the Agency to consider a one year phase-in of the requirement.

Another commenter (151) argued that it is redundant to require TSD facilities to perform separate analyses when a facility's WAP requires generator analyses, prescribes how the analyses are to be performed, and prescribes how certification of the results is to be provided to the TSD facility.

General Motors (joined by American Petroleum Institute (168-pp.94-95)) supported the first approach, but said that if the Agency adopts the second approach to testing, which would require owners/operators of TSD facilities to conduct a detailed analysis of a representative sample of waste at least once a year, the frequency of testing should be determined on a case-by-case basis by the permit writer, allowing the TSD facility to extend the period between tests if there is no reason to think that the incoming waste has changed.

Although one commenter (112) stated that it supports the first approach to waste analysis, it contended that TSD facilities should continually test incoming wastes as a business and safety matter, and that there should be no economic incentive to conduct less testing, unless pursuant to an approved plan.

Agency Response

The Agency is now requiring that TSD owner/operators conduct periodic detailed physical and chemical analysis on each wastestream to ensure that the appropriate Part 268 treatment standards are being met. Although EPA acknowledges that there are many situations where information or test data provided by the generator may constitute an essential part of the necessary information, corroborative testing is necessary to ensure that the LDR requirements are fully met prior to disposal. While TSD facilities may still

generally rely on generator information, periodic corroborative testing will be required. The Agency will soon be issuing guidance to help aid permit writers and the regulated community determine appropriate testing frequencies.

Summary of Comments

Chemical Manufacturers Association (L007-pp.65-68) stated that treatment, storage, and disposal facilities (TSDFs) managing prohibited wastes should be allowed to rely on data supplied by generators to demonstrate compliance with 40 CFR 268.7. Section 268.7 states that TSD facilities must analyze wastes to verify compliance with treatment standards at a frequency stipulated in the facility's waste analysis plan. The commenter noted that EPA believes that Section 264.13(a)(2) which states that TSD facilities may accept data from hazardous waste generators in lieu of conducting all or part of the analysis has been misinterpreted.

CMA argued that EPA's two proposed approaches to rectify this misinterpretation will increase TSD facility operating and generator treatment costs without increasing protection to human health and the environment. The commenter then asserted that generators and TSD facilities can demonstrate that wastes meet the applicable BDAT standards before land disposal. The commenter argued that a TSD facility should rely on generator data when the generator certifies the waste does meet BDAT for three reasons: (1) a TSD facility should not analyze a waste if the generator certifies a waste does not meet the treatment standard; (2) a generator will make sure the waste actually fails to meet BDAT before paying for unnecessary treatment; and (3) even if the generator is in error, human health and the environment is certainly not threatened by disposal of redundantly treated waste. CMA urged

that EPA not require unnecessary and redundant testing and not prohibit reliance on generator data. CMA suggested that EPA should clarify Section 264.13 by stating that TSD facilities may be required to perform waste analyses and require TSD facilities to corroboratively retest wastes periodically in accordance with their permits and operating contracts to verify that wastes meet BDAT before land disposal.

Agency Response

The Agency disagrees with the commenter that corroborative testing is unnecessary and redundant. As stated earlier, the Agency is not prohibiting use of generator information. Instead, the Agency believes that requiring corroborative testing is a prudent and necessary measure to ensure that the waste is what it has been represented to be and that it may permissibly be land disposed.

14.2 Support of Second Approach

Summary of Comments

Several commenters (Environmental Services Company (188-p.2), GSX (239-pp.1-2), Cyanokem (110-pp.33-34), USPCI (137-pp.5-8), Hazardous Waste Treatment Council (172-pp.100-9), and Rollins Environmental Services (124-pp.16-18)) stated that they supported the Agency's second proposed approach to waste analysis and argued that only generators should be required to analyze waste characteristics and determine which BDAT standards apply to wastes that have not been treated. Three commenters (110, 239, 172) contended that requiring disposal facilities to identify applicable treatment standards for a waste would impose an unwarranted liability burden. The commenters argued that only a generator is capable of determining which treatment standards apply to a given waste, based on its knowledge of the processes generating the wastestream. They further noted that only a generator is capable of identifying how to collect a representative sample from its process. Three commenters (137, 239, 172) argued that requiring TSD facilities to test would be prohibitively costly.

One commenter (188) supported EPA's second approach, but opposed any provisions that may have the effect of precluding TSD reliance on generator data. The commenter pointed out that because a TSD facility is responsible for certifying that treated waste meets BDAT standards, there are strong incentives for the facility to conduct testing and collect data on the waste. Any requirements going beyond this level of testing would be duplicative, costly, and unnecessary.

Two of the commenters (239 and 172) and Waste Management, Inc. (159-pp.8-19), who supported neither approach, noted that sufficient laboratory capacity and capabilities may not exist to allow TSD facilities to undertake testing. The two commenters also expressed concern that TSD facilities may be denied due process because the proposed requirements subject TSDs to the potentially inconsistent decisions of the Regional Administrator. Both commenters urged the Agency to consider whether an appeal process is available for TSDs, and whether TSDs must undergo a full Part B permit modification as a result of these requirements.

Agency Response

The testing requirements being promulgated in the final rule do not remove the burden on generators to conduct waste analysis or determine appropriate BDAT treatment standards. Nor does the final rule preclude TSD generators from relying on generator data. The final rule does, however, require TSD facilities to periodically test their wastes to ensure that the information being provided by generators is accurate and the treatment standards are being adhered to. The Agency also rejects the assertion that periodic testing by TSD facilities would be prohibitively expensive. Many facilities already conduct testing of their wastes and the effect of this rule will be to simply formalize the process.

The Agency does not believe that the final rule denies facilities due process. The frequency of testing will be determined by the facility and will be based on various factors including types, volumes and number of wastestreams being received and treated. The Agency will soon be issuing guidance on how to select the appropriate testing frequency. The facility

will need to document in the waste analysis plan its justifications for selecting a particular frequency of testing.

If a permitted facility wants to amend its waste analysis plan to better reflect the testing requirements contained in the final rule, then it would follow the permit modification procedures in Section 270.42.

Summary of Comments

Several commenters (Cyanokem (110-pp.33-34), USPCI (137-pp.5-8), Hazardous Waste Treatment Council (172-pp.100-9), and Rollins Environmental Services (124-pp.16-18)) asserted that preventing generators from relying on the knowledge of their wastestreams would close a major loophole in the LDR regulations. These commenters suggested that EPA conserve its enforcement resources by requiring generators to send copies of its analytical results to the TSD facility on an annual basis. One of these commenters (110) also urged EPA to promulgate a separate regulation or publish a guidance manual if the Agency is going to require increased analysis of generator wastes, rather than leaving the waste analysis requirements up to the permitting process. The commenters argued that EPA should explicitly address questions such as which constituents should be tested, and other analytical requirements. This would resolve the current problem of having these decisions made by permit writers in 50 different states.

Two commenters (137 and 172) expressed concern that EPA may lack the resources and personnel to issue revised WAPs. One commenter (137) was particularly concerned with the ability and experience of EPA Regional offices to write appropriate WAPs. Both commenters objected to the issuance of WAPs by the Regions without having the opportunity to comment provided under

administrative procedures. If the Agency does issue WAPs, then both commenters argued that EPA should judge a facility's compliance with the LDRs based only on the facility's actions in following the WAP. One commenter (135) pointed out that the WAP is a primary factor in determining the costs imposed on a TSD facility and that poorly conceived WAPs can drive a facility out of business.

These two commenters also urged EPA to state in the preamble to the final rule that waste analysis will be allowed while permit restrictions are being reviewed, and that subsequent changes in LDR rules should override any conflicting provisions that may have been written into earlier WAPs. Finally, both commenters urged the Agency to issue guidance that would form the basis of a uniform policy on waste analysis requirements.

Agency Response

The issue of permitting generators' knowledge to determine compliance with treatment standards was addressed in the solvents and dioxins rule and California list rule litigation and is not reopened for comment in this rulemaking. The Agency will soon be issuing guidance to ensure that the regulated community and permit writers have adequate information to determine appropriate frequency of testing. The guidance should also help insure that the criteria used to determine testing requirement for TSD facilities are applied in a consistent manner.

The Agency notes that compliance with the LDR requirement will depend on the proper treatment of restricted wastes and not on the facility's waste analysis plan. In particular, enforcement is generally based on grab samples and analysis of all constituents regulated by the applicable treatment

standards. Thus it is conceivable that a facility could comply with the waste analysis plan but still be in violation of the land disposal restrictions.

14.3 Corroborative Testing

Summary of Comments

Hazardous Waste Treatment Council (172-pp.100-9) and Rollins Environmental Services (124-pp.16-18) agreed with EPA that periodic corroborative testing should occur in cases where a generator certifies that its wastes meet the applicable treatment standards. However, both commenters objected to the suggestion that where a TSD facility is treating the waste, it should be required to test the incoming untreated waste. In the case of incoming untreated waste, a treatment facility needs sufficient information to know how to treat the waste properly, but there is no reason why this analysis cannot be performed by the generator. Both commenters contended that present testing requirements and procedures are adequate. One commenter (172) added that if TSD facilities are required to test, many characteristic wastes will escape regulation because the determination will not be made by the generator prior to shipping the waste off-site.

Agency Response

The objective of the final rule is to ensure that LDR requirements are being met by TSD facilities. The Agency believes that periodic corroborative testing is the most effective way to achieve this objective. The final rule does not relieve generators from the responsibility of determining appropriate treatment standard and notifying the TSD facility. The commenter's assertion that characteristic wastes will escape regulation because generators will no longer determine treatment standards is simply incorrect.

Summary of Comments

ICWM (164-pp.7-8) and Disposal Systems (261-p.2) expressed concern about the Agency's proposal to require the owners and operators of TSD facilities to undertake corroborative testing of hazardous wastes they receive on an annual basis or more often than annually. The commenters stated that this proposal would require them to become the enforcement arm for meeting LDR requirements. One commenter (164) commented that it is the responsibility of the generator to characterize his or her waste and provide data, and that it is the responsibility of the treatment facility to verify that the treated residue meets LDR standards. They also opposed the requirement of corroborative testing beyond fingerprint screening by the treatment facility. The commenter said that this proposal would shift the responsibility for characterization from the generator to the treatment facility. The other commenter (261) also opposed the requirement of corroborative testing, because it shifted the responsibility for the verification of treatment residues from the treatment to the disposal facility. Furthermore, the commenter stated that a once-a-year testing requirement was meaningless, particularly when grab samples are used.

Agency Response

The Agency reiterates its position that, while there are situations where test data submitted by the generator, or knowledge of the generator, is useful in verifying that the treated residue meets LDR standards, corroborative testing is necessary to ensure that LDR requirements are met.

Summary of Comments

Waste Management, Inc. (159-pp.8-19) argued that in cases where the generator has not tested its waste, the disposal facility should be required to test. In cases where a generator does supply analytical data, however, there is no technical or legal basis to require a TSD facility to perform corroborative testing, and a TSD should not have to obtain authorization in its WAP to accept the data. Moreover, the commenter noted that a corroborative testing requirement would contradict the Agency's June 4, 1987, technical correction, which states that disposal facilities are not required to test if the generator or treatment facility has certified that the waste meets applicable treatment standards. The commenter argued that responsibility for assuring a waste meets treatment standards rests with the treatment facility that will generate data of a known precision and accuracy as long as quality assurance and quality control are followed. The commenter contended that if corroborative results conflict with the initial results, several problems will occur, such as whether the waste should be returned for treatment, whether the verification testing should be re-corroborated, whether storage of the wastes should occur, and technical disputes over the testing methods used. The commenter urged EPA to require that waste analysis data be maintained in the disposal facility's record.

The commenter further argued that the Agency's second proposed approach is unprecedented and goes beyond the needs of the LDR program. The annual corroborative testing required of TSD facilities would create disruptions in the regulated community because of high costs and insufficient laboratory testing capacity.

Agency Response

The commenter's view notwithstanding, the Agency does retain the authority to require corroborative testing. Several commenters have misconstrued the regulatory language to mean that use of generator data by TSD facilities precludes the Agency from requiring corroborative testing. The final rule clarifies the language to prevent such misinterpretation. Moreover, the Agency notes that the D.C. Circuit in upholding EPA's Section 268.7 testing framework stated:

[J]ust prior to land disposal, waste must be vigorously tested to confirm that it is what others have represented it to be and that it may permissibly be land disposed.

The final rule does not require annual testing, but rather periodic testing based on several criteria. In some cases annual testing will be required, in other cases less frequent testing will be appropriate. The Agency has stated that it does not believe that periodic testing will be unduly expensive nor will it overwhelm existing laboratory capacity.

14.4 Lack of Support for Either Approach

Summary of Comments

Several commenters did not express support for either waste analysis approach proposed by EPA. Browning-Ferris Industries (214-pp.39-40) opposed both approaches, arguing that the first approach would preclude interim status facilities from relying on generator data because these interim facilities' WAPs (unlike permitted facilities' WAPs) are not approved by EPA. The commenter contended that this distinction between interim status and permitted facilities is unnecessary and unwarranted. The commenter further argued that the second approach would not provide flexibility for TSD facilities to rely solely on generator data when such reliance is warranted, such as in cases where the generator certifies that its wastes do not meet applicable treatment standards. This requirement would be duplicative and may carry an environmental risk due to the waiting times required for testing.

General Dynamics (272-pp.5-6) did not support either approach, but argued that TSD facilities should bear sole responsibility for analyzing wastes and determining compliance with the LDRs. The commenter argued that since disposers are end-of-the-line waste handlers, they would best ensure protection of human health and the environment with a minimum cost to the economy.

Agency Response

The changes being promulgated in the final rule address most of the issues raised by the commenter. Interim status facilities will be allowed to

use generator information, thus eliminating the distinction between interim and fully permitted facilities that was found in the proposed rule. Interim status facilities, however, will need to modify their waste analysis plans if the existing plan contains no provisions for testing. Although the Agency agrees that generators are responsible for determining the appropriate treatment standards, it is the TSD facility that has the ultimate responsibility for proper disposal of hazardous wastes. Corroborative testing will help assure that this responsibility is being met.

Summary of Comments

Nortru (241-pp.3,5-6,19-22) argued that the Agency's first proposed approach, in which generators may supply waste analysis information only if this is specifically approved in the WAP, would impose a significant burden on small and medium sized generators. This approach also would impose a burden on off-site TSD facilities that perform the generator's characterization. The second approach would provide unreliable and unrepresentative waste analysis results and would impose an economic burden on TSD facilities. The commenter suggested that the Agency require TSD facilities to obtain a complete characterization for each new wastestream, to be supplied by either the generator or the TSD. The Agency should also require each waste shipment to be analyzed for "fingerprint" components that would alert the TSD to any significant changes in the wastestream composition. Finally, the commenter requested that the Agency clarify what it means by a complete chemical and physical analysis and how an analysis is certified, the guidelines a permit writer must follow in developing a WAP's sampling procedures, and what tests must a TSD facility complete to assure that a waste is adequately

characterized.

Agency Response

Non-exempt generators must already supply appropriate treatment standards as part of the notification requirements. The final rule does not alter these requirements and thus does not pose any additional burden on generators. The Agency will issue guidance on determining testing frequency.

14.5 Miscellaneous Issues

Summary of Comments

Department of Energy (198-pp.27-28) pointed out that at large Federal facilities, many wastestreams will be treated and disposed of on site, with the generator and the TSD facility being the same entity. The commenter recommended that the Agency differentiate between wastes disposed of on site and off site, and that they provide guidance on the frequency of testing required of on-site treatment facilities. Rohm and Haas (194-pp.41-42) similarly argued that both approaches would impose unnecessary burdens on off-site TSD facilities because of the significant cost and the amount of time required to test wastes. The commenter urged the Agency to give special consideration to TSD facilities receiving waste from a sister plant or a subsidiary. The commenter further argued that if a waste analysis performed by a sister facility is incorrect, the same corporate family would be subject to noncompliance action.

Agency Response

The Agency does not believe that the testing requirements should be affected by location or ownership of the treatment facility. The primary purpose of corroborative testing is not to establish liability but to assure compliance. Testing by the treatment facility will confirm the information provided by the generator regardless of whether the generator is located on-site or off-site. As previously stated, the Agency believes that this approach is the most efficient means for achieving a high level of compliance.

Summary of Comments

Dow (179-p.37) proposed that the following sentence be added to the end of the proposed comment, "For the purposes of Part 268, if the same person owns both the generating facility and the off-site facility, data generated by one facility is equivalent to data generated by the other in all respects." Dow argued against EPA's proposal to limit the use of generator supplied data by treatment and disposal facilities, especially when applied to off-site treatment and disposal facilities owned and/or operated by the same company as the generating facility. The commenter also asserted that requiring the test to be conducted on the site of the treatment and disposal facility is not appropriate, because the facility might not have the necessary test equipment or capacity. Finally, Dow noted that having the treatment and disposal facility send people to conduct the test at the generating facility is impractical.

Agency Response

The Agency is not altering the waste analysis plan and testing requirements for persons owning both the generating and TSD facility. As stated elsewhere, the primary purpose of the corroborative testing requirements to confirm data provided by the generator. Whether the generator facility is jointly owned by the TSD facility or owned by another entity should have no bearing on the accuracy or quality of the data provided to the TSD facility. To relax the standards for certain facilities would create a distinction when in fact there is no justification for one.

Summary of Comments

Environmental Defense Fund (125-pp.15-16) argued that the two approaches should be combined. Waste analysis plans should be approved during permitting, and minimum testing requirements should appear in the regulations to govern interim status facilities and provide a point of departure for permit writers. Minimum testing requirements should also be imposed upon waste generators to ensure that the generator has identified all the relevant characteristics a waste exhibits.

Agency Response

Most of the concerns raised by the commenter have been addressed in the final rule. The final rule requires periodic testing for all TSD facilities although no specific minimum frequency of testing requirement was established. The Agency believes that the variability in types of TSD facilities made the imposition of a specific minimum requirement (e.g., once a year) impractical. The frequency of testing for a particular facility will be dependent on the types and number of wastestreams it treats.

14.6 Lab Packs

Summary of Comments

Several commenters expressed concern that lab packs be given special treatment in waste analysis requirements. Sandia National Labs (118-p.3) stated that as a generator, it has successfully relied upon knowledge of its processes to identify the wastes contained within its lab packs. The commenter urged the Agency to exempt lab packs from any annual waste analysis requirements because annual samples will not represent wastestreams generated during the rest of the year. An annual testing requirement would, therefore, impose a substantial burden without increasing knowledge of the waste.

Michigan Disposal (113-p.11) and Wayne Disposal (130-p.4) argued that generator certification of lab packs should indemnify the receiving TSD facility from any subsequent errors in waste management. Both commenters said that generators should be required to provide annual up-dates of wastestream analyses to ensure that new constituents have not been introduced into the wastestream. HWTC (172) and Rollins Environmental Services (124) further argued that testing each of the 10-20 vials contained in a lab pack would be impractical and counterproductive. Lab packs are packed by qualified chemists and receive special handling at TSD facilities that provide for adequate environmental protection.

Agency Response

The Agency is not issuing different waste analysis plan or testing requirements for lab packs. The wastes will be subjected to the same periodic

testing requirements as other wastestreams. Because the final rule allows generators to apply treatment standards based on whether the lab packs contain organic constituents or EP toxic metals rather than based on specific waste codes, corroborative testing remains important to ensure that lab pack shipments are properly segregated prior to treatment. However, the alternative lab pack treatment standards are expressed as methods. In such cases, no corroborative testing is imposed by the LDR provisions. Instead, a certification that the required method has been utilized must be completed by the treatment facility.

14.7 Certification

Summary of Comments

Hazardous Waste Treatment Council (172-pp.78-80) agreed that the most stringent of the applicable BDAT standards should apply to a listed waste that also exhibits hazardous characteristics. The commenter argued, however, that generators will not be able to adequately identify all applicable treatment standards because it is unclear whether and how a generator must determine that his waste is both a listed and characteristic waste. This commenter asserted that 40 CFR Sections 268.7, 268.42, and 262.11 are ambiguous in setting out generators' responsibilities, and proposed revisions under which generators would be obligated to identify all applicable EPA Hazardous Waste Numbers, land disposal restrictions, and treatment standards. A second commenter (Olin Chemicals (129-p.31)) asserted that the existing regulatory language is clear in stipulating that it is the generator's responsibility to determine whether a waste is listed or characteristic. The commenter expressed concern that changing the regulatory language will create confusion in the regulated community.

Agency Response

The Agency notes that it has added new regulatory language in Section 268.9 describing generator responsibilities regarding wastes that exhibit a characteristic. Section 268.9 states that the "initial generator of a solid must determine each waste code applicable to the waste to determine the applicable treatment standards under Subpart D." Furthermore "where a

prohibited waste is both listed under Part 261 Subpart D and exhibits a characteristic under Part 261 Subpart C, the treatment standard for the waste code listed in Part 261 Subpart D will operate in lieu of the standard for the waste code listed in Part 261 Subpart C, provided that the treatment standard for the listed waste includes a treatment standard for the constituent that causes the waste to exhibit the characteristic." Otherwise the waste must meet the treatment standards for all applicable listed and characteristic waste codes.

Summary of Comments

USPCI (137-p.5) stated that the EPA should clarify that the certification requirements under 268.7 are not applicable to land disposal facilities that also treat waste on-site.

Agency Response

The Agency is not changing certification requirements for facilities that treat on-site. The purpose of the certification requirement is to verify that restricted wastes are properly treated prior to disposal. The Agency sees no reason to relax this requirement for facilities that treat on-site.

Summary of Comments

U.S. Ecology (226-p.3) strongly urged EPA to require, through regulation, that the generator/treater develop and implement waste analysis plans so that the certification provided to the land disposal facility is

legitimate, and does indeed verify that the shipped waste meets applicable treatment standards. The commenter noted that the land disposal facility must test the waste, at a frequency prescribed in its waste analysis plan, to ensure that it is indeed the waste profiled by the generator. Therefore, the responsibility of certification shifts to the land disposal facility and not to the generator/treater. The commenter cited the inconsistency between the regulations and actual enforcement, because the regulations require the generator/treater to certify that wastes meet treatment standards, but EPA declares that land disposal facilities bear the responsibility for acceptance of non-prohibited wastes. The commenter asserted the burden of proof for certification should rest with the generator/treater and not the land disposal facility.

Agency Response

The Agency believes that the existing certification requirements together with the corroborative testing requirements are sufficient to ensure that certifications are "legitimate". There are significant penalties including fines and imprisonment imposed on anyone convicted of submitting a false certification. EPA notes that the land disposal facility has the final responsibility for proper disposal of restricted waste and believes that any shift of this responsibility would ultimately reduce compliance with the LDR rules and be less protective of the environment.

14.8 Other Testing

Summary of Comments

Arizona Public Service Company (L004-p.1) stated that the second approach proposed by EPA on testing requirements is much more preferable than the first one (p. 48380). The commenter listed two reasons why the first approach requiring more or duplicate sampling is not advisable: (1) only a few laboratories are licensed to perform testing on radioactive samples, thus an increase in the number of samples could adversely affect these laboratories' ability to perform other analyses and to process reports promptly; and (2) the first option would require more shipment of radioactive material across the country than would be necessary under the second option.

Agency Response

EPA does not expect a dramatic increase in testing as a result of today's rule, since corroborative testing is already being done in many cases. The Agency also does not agree that the proposed second option would necessarily increase the shipment of radioactive wastes.

Summary of Comments

The Environmental Protection Agency (Region II) stated that the issue of waste analysis plans and TSD testing has become a major enforcement concern. The commenter believed that a combination of two proposed approaches would yield the most beneficial waste analysis program. The commenter recommended

allowing TSD facility to use generator data if the waste analysis plan allows the generator to do so. The generator information must be sufficient to determine the waste's status with respect to the prohibitions contained in 40 CFR. Part 268 and must be updated annually. Otherwise the TSD facility must conduct testing.

Agency Response

The Agency acknowledges the commenters concerns and has selected an approach that combines aspects of both proposed options. The final rule permits use of generator information in all cases where such information is provided but also requires TSD testing to confirm accuracy of supplied information.

15. 90-DAY TANK TREATMENT

Summary of Comments

Several commenters (Cyanokem (110-pp.36-37), Hazardous Waste Treatment Council (172-pp.129-30), and USPCI (137-pp.11-12) supported the proposal to require waste analysis plans for currently exempt treatment in 90-day tanks. These commenters stated that the proposal would close a major loophole in the LDR regulations, considering that 96 percent of all waste generated is managed on-site. These commenters believed that generators should develop, maintain, and perform waste analyses; in addition, the commenters were concerned about waste tracking and implementation. Specifically, the commenters expressed concern over the ability of EPA to verify that a given wastestream was actually treated to the standards. To this end, the commenters suggested a five-step waste treatment program for generators/treaters that included providing notification to EPA and the State; reporting on the treatment activity as part of the biennial report; certifying each batch of waste treated; submitting notification and certification to the disposal facility; and keeping records of all waste analysis data, certifications, and final dispositions of the treated residues for five years.

Agency Response

EPA agrees that requiring generators treating prohibited wastes to comply with the treatment standards in 90-day tanks and to develop waste analysis plans (WAP) will close a major loophole in the LDR regulations. Therefore, only generators conducting full treatment of prohibited wastes are

required to meet the standards and WAP, while those generators not conducting full treatment do not have to meet the WAP. Because an individual facility's WAP serves as the basis for that facility's compliance monitoring, the current exemption provided to 90-day treatment tanks creates the potential for non-compliance. In addition to requiring development of a WAP, the Agency is clarifying the rules so that wastes treated to BDAT standards in 90-day tanks are subject to the Section 268.7 record-keeping requirements. Furthermore, WAPs should be filed with EPA Regional offices or the State environmental office within 30 days.

Summary of Comments

Environmental Defense Fund (125-pp.16-18) believed that EPA's proposal to require waste analysis plans for currently exempt treatment in 90-day tanks or containers was insufficient to protect human health and the environment, because these self-implementing plans would not be subject to regulatory approval or minimum testing requirements. The commenter argued that EPA fundamentally misinterpreted its regulations allowing treatment (in addition to storage) in 90-day tanks or containers. The commenter stated that EPA originally created the exemption from permitting for 90-day tanks and containers to facilitate the off-site transportation of hazardous waste through the accumulation of waste quantities that could be transported economically. Thus, the 90-day provisions were intended only for temporary storage purposes. Consequently, the commenter believed that allowing treatment of hazardous waste in 90-day tanks was contrary to the rationale for exempting such tanks from permitting requirements.

As a result, the commenter declared that EPA should prohibit hazardous waste treatment in tanks or containers subject to 40 CFR 262.34. Otherwise, waste treatment in 90-day units would proceed essentially unregulated, regardless of whether EPA promulgated its proposed approach.

Agency Response

The issue of whether treatment in 90-day tanks is permissible is not a Third Third issue and not open for comment. The Agency, however, is addressing some of the commenter's concerns by extending waste analysis and recordkeeping requirements to generators treating prohibited waste in 90-day tanks.

Summary of Comments

Olin (129-pp.3-4) did not support EPA's proposal to require waste analysis plans for currently exempt treatment in 90-day tanks or containers, citing the U.S. Court of Appeals' decision in Hazardous Waste Treatment Council v. EPA (No. 86-1657, D.C. Cir., September 15, 1989) as the basis for its position. The Court reasoned that EPA should not compel testing if waste generators possess sufficient knowledge to certify that their wastes meet treatment standards and can be transported directly to a land disposal facility.

The commenter also stated that until the current proposal, EPA had not indicated that it would remove "generators' knowledge" in lieu of a formal waste analysis plan. The commenter believed that EPA would exceed its authority and be in conflict with the Court's decision if it required 90-day

generators to test and submit detailed waste analysis plans. In addition, the commenter asserted that EPA had not demonstrated any technical basis for waste analysis plans for 90-day generators. The commenter maintained that existing 40 CFR 268.7 generator certification requirements and TSDF testing requirements further eliminated the need for this section of the proposed regulations.

Agency Response

The commenter is incorrect. EPA stated in the framework rule that if generators also treat, they assume a treater's responsibilities for waste analysis and thus must test their wastes (See 51 FR 405981).

Although the Agency has permitted "generators knowledge" to be used to supply part or all of the waste analysis information, neither EPA nor authorized States are precluded by the statute or the regulations from requiring TSD facility owner/operators to conduct detailed chemical and physical testing of restricted wastes, and in these cases, generators are also fulfilling the role of treaters. Because some members of the regulated community have misinterpreted the regulations, EPA is amending the regulatory language to prevent future misinterpretation. The Agency also believes that the mechanism established today provides a ready means for generators who treat, to document that they have satisfied this existing test obligation. Thus, they will be subject to recordkeeping requirements to document the present waste analysis requirements. The need for waste analysis and recordkeeping is no less for wastes treated in 90-day tanks than that for wastes treated by other means. In all cases, prohibited wastes must meet LDR standards and these amendments will enhance compliance and facilitate

enforcement.

Summary of Comments

Fermenta ASC (280-p.2) stated that persons treating prohibited wastes in 90-day tanks or containers do not need to prepare a separate plan justifying the frequency of testing for treatment residues. The commenter argued that there are sufficient regulatory requirements already in place and that additional requirements are unnecessary.

Agency Response

The Agency disagrees with the commenter's view that the current regulatory requirements for 90-day tanks are sufficient. There are no testing frequency requirements in those rules, nor any other provisions relating to compliance with part 268 rules. The Agency has determined that without added requirements, there is significant potential for non-compliance.

Summary of Comments

OxyChem (138-pp.15-16) did not support EPA's proposal to require waste analysis plans for currently exempt treatment in 90-day tanks or containers. The commenter believed that the proposed requirement was unnecessary, since 90-day generators must now be able to certify that their wastes meet BDAT before offering them for land disposal. This certification can only be accomplished through a waste analysis or through a thorough knowledge of a particular waste treatment process. The commenter further stated that if the

Agency were to promulgate a waste analysis requirement, EPA should limit the applicability of such requirements to those owners/operators using 90-day units to achieve BDAT.

Agency Response

The Agency believes that requiring waste analysis plans for 90-day tanks will ensure that proper testing and treatment is conducted. The information made available in the plans should also improve enforcement efforts. The Agency agrees with the commenter that these requirements should apply only to those 90-day units that are used to achieve BDAT standards.

Summary of Comments

Rohm & Haas (194-p.42) expressed concern that regulators may eventually require waste testing every 90 days. This commenter thought that 90-day generators did not need to test their wastes that frequently, since treatment in 90-day units would typically involve the same wastes. Rather, this commenter suggested that 90-day generators needed only to test their wastes once, but should repeat the test if a change occurred that would affect the waste or the treatment process.

Agency Response

The amended requirements include development of waste analysis plans that detail the frequency of testing that will be conducted. The Agency is not specifying the actual frequency of testing, but the plans should

demonstrate that the selected frequency of testing is sufficient to ensure that the required treatment standards are being met.

Summary of Comments

USWAG (204-pp.37-38) urged EPA to clarify that generators treating wastes in 90-day tanks or containers must only prepare waste analysis plans for those 90-day units that treat wastes destined for land disposal. The commenter stated that wastes treated in a 90-day unit for subsequent management in a manner other than land disposal remain unaffected by the LDR program and, thus, should not be subject to testing requirements.

Agency Response

As stated in earlier responses, the Agency is imposing these requirements only on those 90-day units that are used for treating prohibited wastes to achieve the BDAT standards. If a waste is not destined for a prohibited form of land disposal, the waste will not be subject to the Part 268 treatment standards and so would not be subject to these particular requirements. (Certain Section 268.7 tracking requirements applicable to restricted wastes could apply, however).

16. APPLICABILITY OF HARD HAMMERS TO CHARACTERISTIC WASTE

Summary of Comments

Several commenters (American Petroleum Institute (168-pp.28-31), Dow (179-pp.5-7), American Mining Congress (201-pp.9-13), GNB (202-pp.5-7), and Precious Metals Producers (203-pp.8-9)) asserted that RCRA hard hammer prohibitions on land disposal of untreated hazardous wastes apply only to listed wastes, not characteristic wastes. The commenters further asserted that despite unambiguous and clear statutory language, EPA unnecessarily relies on legislative history. One commenter (168) asserted that EPA's new interpretation was in fact a rewriting of the statute. Three commenters (179, 201, and 202) cited several court cases (i.e., Ulmet v. United States, Zolg v. Kelly, United States v. Ron Pair Enters, Burlington Northern R.R. Co. v. Oklahoma Tax Comm'n, and HWTC v. EPA) which rejected EPA's interpretation in favor of the statutory language. Two commenters (179 and 201) further argued that the Agency is stepping outside the limits of its power by interpreting a statute in a manner clearly inconsistent with the statute's unambiguous terms.

EPA's interpretation does not immediately affect another commenter (203) because mineral processing wastes are not considered in the Third Third rulemaking, but the commenter believed the interpretation could have adverse impacts on its members. Another commenter (202) asserted that the slag and matte produced in their battery recycling operations are not listed wastes and declared that the express language refers only to listed hazardous wastes. Since statutory hammers are novel, another commenter (168) stated that they should be narrowly construed within the boundaries of the statute.

Moreover, the commenters stated that EPA should not dismiss the issue

just because the Agency has proposed treatment standards for characteristic wastes to meet the effective date of the statutory land disposal ban. One commenter (203) noted that EPA itself acknowledged that there is little data available on treatment of wastes and that developing sound treatment standards for these wastes would be unlikely before May 1990. One commenter claimed that EPA's proposed approach for the standards is flawed and incomplete. For example, EPA incorrectly suggests it has the authority to set standards for wastes requiring treatment below the characteristic levels themselves. Also, proposed treatment standards for certain wastes (e.g., reactive wastes) could lead to new, unanticipated land disposal problems that would require more time for EPA to resolve. The commenter (168) stated that EPA should correct these flaws before promulgating standards.

The commenters asserted that the applicability of the hard hammer to characteristic waste should be resolved consistently with the statutory language so that EPA does not hastily promulgate inadequate treatment standards to meet a land ban deadline. One commenter (203) thought inadequate treatment standards now could set the stage later for equally inadequate mineral processing waste standards.

Agency Response

The commenters' objections are rendered moot because EPA is promulgating treatment standards for all characteristic wastes except for mineral processing wastes. The Agency will determine the appropriate BDAT treatment standards for mineral processing waste upon completion of technical analyses that the Agency will soon perform.

Summary of Comments

GNB (202-pp.5-7) stated the scope of the hard hammer land ban was important since it believed EPA's proposed BDAT standards for battery recycling slag are inadequate. With no proper BDAT standards in place by May 1990, the commenter stated that EPA might misguidedly seek hard hammer land ban disposal of slag, even if it could be treated further under a standard other than the one EPA had endorsed by the hard hammer date. The commenter asserted that EPA's erroneous hard hammer interpretation might cause the Agency to rush to adopt inappropriate treatment standards, such as for slag, to avoid the appearance of automatically subjecting a waste to a total land ban. Because of this and the legal imperatives, the commenter urged EPA to return to its original interpretation of the hard hammer restrictions, which only land banned listed hazardous wastes.

Agency Response

The commenter's objections are rendered moot because EPA is establishing treatment standards for battery recycling slag. The Agency also rejects the view that it has rushed to develop treatment standards in order to avoid subjecting wastes to the total land ban.

Summary of Comments

ASARCO (269-pp.12-14) agreed with EPA that newly identified and newly listed mineral processing wastes subject to regulation are not subject to land disposal hard hammer prohibitions. The commenter asserted, however, that

contrary to EPA's opinion, hard hammer provisions refer only to listed wastes, not characteristic wastes. The commenter (joined by Shell Oil (185-p.2)) agreed with EPA's original interpretation of the statute where characteristic wastes are not subject to the hard hammer provision. One commenter (269) asserted that under the plain language of the statute, Congress did not intend to subject the characteristic wastes to the statutory hard hammer, and the Agency must yield to this intent (see Chevron U.S.A., Inc. v. NRDC). The commenter noted that the Agency itself acknowledged the difficulty of establishing characteristic waste treatment standards, and a second commenter (185) claimed that the rule raises formidable issues. Therefore, both commenters asserted that time is needed to gather data on possible solutions. As an example, one commenter (185) suggested producing only insoluble salts when neutralizing corrosive characteristic wastes. The other (269) stated that EPA should take the necessary time to develop appropriate BDATs rather than rush to meet a land ban deadline set by its unlawful interpretation of the hard hammer applicability to characteristic wastes.

Agency Response

The commenters' objections to the application of the hard hammer provisions to characteristic wastes require no response since treatment standards are being promulgated for these wastes. The Agency believes that the treatment standards it is promulgating are appropriate and based on sufficient data and analysis. Except in the case of mineral processing wastes, the Agency does not believe that additional time is needed to develop BDAT standards for characteristic wastes.

17. RESPONSE TO HWTC DECISION

Summary of Comments

Dow (179-pp.1-2) and American Mining Congress (201-pp.25-28) argued that EPA has proposed technology-based treatment standards rather than risk-based standards, without providing an adequate explanation why such treatment standards are necessary to minimize threats to human health and the environment, as required under RCRA Section 3004(m). The commenters contended that even though the Court in HWTC III held that EPA's decision to use only technology-based standards in the November 7, 1986, final rule was a reasonable interpretation of RCRA Section 3004(m), the Court did not implicitly endorse the Agency's decision to base treatment standards on BDAT. The commenters contended that EPA's proposed approach would conflict directly with the Court's mandate that EPA is not "free...to require generators to treat their waste beyond the point at which there is no "threat" to human health or the environment."

The commenters contended further that EPA bears a heavy burden in trying to demonstrate that BDAT is a reasonable basis for establishing treatment standards. For example, the commenters argued citing the HWTC III decision, EPA will be required pursuant to the Court's request to explain how its concern with health and environmental threats would require generators under the November 7, 1986, final rule to treat certain wastes to levels of purity beyond those that EPA requires for drinking water. The Agency, contended the commenters, cannot reasonably claim that technology-based treatment standards are uniformly necessary to protect human health and the environment.

The commenters proposed that the Agency should adopt the approach set

forth in the proposed Solvents and Dioxins Rule of January 14, 1986, and establish risk-based treatment standards whenever technology is capable of treatment below such levels. The commenters also contended that, if the Agency has decided uniformly to develop the more stringent, technology-based treatment standards rather than the health-based standards as the appropriate level for treating restricted waste, then EPA should identify the incremental "threats to human health and the environment" that the Agency hopes to address as a result of its decision.

Agency Response

As the commenters have stated, the D.C. Circuit Court in HWTC III held that EPA's decision to use technology-based standards in the November 7, 1986, final rule was a reasonable interpretation of RCRA Section 3004(m). Moreover, in response to the Court's remand, the Agency issued a clarification of its decision to use technology-based standards in the Federal Register (See FR 55 6640). This explanation was upheld by the reviewing Court. In essence, the Agency indicated that the present degree of uncertainty in assessing such factors as waste toxicity, synergistic potential, and behavior in land disposal environments warranted retention of a technology-based approach until EPA was able to promulgate de minimis hazardous constituent concentration levels which would define both when wastes are clearly no longer hazardous and when threats from land disposal have clearly been minimized.

The Agency also notes that it has been well established that Section 3004(m) does not dictate that treatment standards be either technology-based or risk-based. Section 3004(m) does, however, require that the standards substantially diminish the wastes' toxicity or mobility in order that short-

and long-term threats to human health and the environment are minimized. The legislative history of Section 3004(m) also provides support for the interpretation that Congress intended something other than treatment standards reflecting EPA-determined acceptable levels of risk normally used in establishing Subtitle C regulations. Section 3004(m) was adopted as an amendment to the Senate bill, replacing a provision in the House bill that specifically authorized EPA to make risk-based determinations.

In sum, the Agency's use of technology-based standards is appropriate because it minimizes the uncertainties associated with land disposal of hazardous waste and achieves the objective of substantially reducing waste toxicity as mandated by Congress. The Agency also believes that technology-based standards better further the Congressional goal of using existing treatment capacity. The Agency is developing a de minimis provision in the context of the RCRA Subtitle C program. Such a provision would balance the disincentives and management of low-risk treatment residues with the need for regulatory control and environmental protectiveness. To date, the Agency has neither completed its review nor proposed such a provision.

Summary of Comments

HSIA (166-p.3) contended that EPA has not provided adequate support in the Third Third proposed rule for its finding that none of the proposed treatment standards are below levels where threats to human health and the environment are minimized. The commenter argued that establishing treatment standards that are lower than that required for drinking water has no benefit. The commenter stated, for example, that the MCLG for 1,1,1-trichloroethane is 200 ug/l. The two alternative proposed treatment standards for this chemical

as a U waste (U226) are 7 ug/l and 54 ug/l. The commenter contended that, for this substance, EPA is requiring treatment under the proposed Third Third rule to a level approximately 4 to almost 30 times as stringent as the level under Section 1412(b)(4) of the Safe Drinking Water Act. According to the commenter, the level under the SDWA has been determined by EPA to be "the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety."

The commenter argued that, EPA should explain why dilution or attenuation factors are considered for some purposes, but not for LDRs. The commenter has contended also that EPA used the uncertainties associated with the Agency's carcinogenic risk assessment to justify adoption of the BDAT approach. According to the commenter, EPA should have sought to develop concentration-based treatment standards based upon risk, despite the difficulties presented by the risk assessment methodologies.

A second commenter (Envirosafe (081-pp.6-8)) stated that EPA should be consistent in its approach to protecting human health and the environment by promulgating levels of protection that are the same for the delisting and BDAT programs. The commenter noted that even though the Agency indicated that the BDAT standards are more stringent than some levels already promulgated under the delisting program, none of the BDAT treatment standards is below a health-based level. The commenter asserted that if the purpose of the delisting program is to be protective of human health and the environment as stated by EPA, then the delisting levels must be inappropriate. In the past, EPA has claimed that the two programs are not interrelated. The commenter noted that in the current proposal, however, EPA referred to the delisting program as part of, and thus related to, the land disposal restriction (LDR) program.

Agency Response

The Agency reaffirms its decision to use the BDAT approach rather than health-based levels and notes that incongruences between BDAT standards and those found in other programs are a result of different statutory mandates. Given Section 3004(m)'s mandate to minimize threats, the Agency believes that the standards are not established wholly without regard to whether there might be a threat to human health or the environment. The standards are expressed in terms of 1) the concentration levels of the hazardous constituents in the waste or treatment residuals; or 2) concentration levels in an extract developed by use of the TCLP. Thus, the standards allow disposal of concentrations of these wastes from which there could be further non-redundant minimization of threats that could be achieved by either destroying the hazardous constituents or removing them from the environment.

EPA notes further that its existing rules (40 CFR 260.20) allow persons to petition the Agency to amend or promulgate new regulations. These procedures are open to persons believing they can demonstrate that the standards for the wastes contained in this rulemaking are established "wholly without regard to whether there might be a threat to human health or the environment."

18. FOUR YEAR RETROFIT FOR MTR UNITS

Summary of Comments

Borax (211-p.2) asserted that the four years provided under RCRA for facilities to retrofit surface impoundments managing non-Bevill mineral processing wastes may not be adequate. The commenter suggested that the time period allowed to meet minimum technological requirements be determined on a site-specific basis that would allow the facility to obtain the economic value of the unit, as well as protect human health and the environment.

Agency Response

The Agency acknowledges the concerns raised by the commenter, but notes that the time limit for retrofitting surface impoundments is a statutory requirement and not subject to change through Agency regulatory action.

Summary of Comments

American Mining Congress (201-p.29) and Dow (179-p.38) disagreed with EPA that a statutory conflict exists between RCRA Section 3004(h)(4), which requires any hazardous wastes that are the subject of a nationwide or case-by-case capacity variance to be managed in MTR units, and Section 3005(j)(6), which guarantees surface impoundments managing newly identified wastes four years to retrofit to meet the MTRs of Section 3001(o)(1). The commenters cited 53 FR 11769 (August 17, 1988), and Mobil Oil Corporation v. EPA, 871 F.2d 149 (D.C. Cir. 1989) in support of their position. The commenters

asserted that EPA had interpreted Section 3004(h)(4) prior to 1988 (at 51 FR 40603) as requiring that national capacity variance wastes be managed in MTR facilities, as opposed to MTR units. The commenters concluded that the joint interpretation of the two provisions provides that national capacity variance wastes may be managed in non-MTR units during the period of any capacity variance as long as new, replacement, or lateral expansion units at the facility are in compliance with the MTRs. The commenters also asserted that the general language of Section 3004(h)(4) cannot override the specific language of Section 3005(j)(6) wherein the issue of newly identified wastes is directly addressed.

The commenters further contended that facilities should be allowed to manage newly identified wastes in non-MTR impoundments for four years, whether a capacity variance has been granted or not. The commenters pointed out that EPA had failed to explain the reasons for denying surface impoundments that manage newly identified wastes the four years to retrofit, as guaranteed under Section 3005(j)(6).

One commenter (179) noted its participation in a Chemical Manufacturers Association study that indicated that the actual time required for replacing or retrofitting surface impoundments treating wastes that have become hazardous due to new regulations will be between three and five years. The commenter, therefore, concluded that EPA must allow surface impoundments the full four years provided in the statute for compliance with MTRs to avoid disrupting operations at many chemical production facilities.

Agency Response

The Agency is not responding to this issue since it believes there is no

potential statutory conflict between Sections 3004(h)(4) and 3005(j)(6).

19. "NO LAND DISPOSAL" TREATMENT STANDARD

Summary of Comments

Association of State and Territorial Solid Waste Management Officials (157-p.6) and Dow (179-pp.8-9) supported EPA's proposal to revoke all previously promulgated "No Land Disposal" standards. However, one commenter (179) disagreed with EPA's consideration of this standard as a potential option for certain hazardous wastes, specifically P and U wastes based on "No Generation." This commenter (179) argued that the standard contradicts the statutory requirement that standards be stated as a level or method, and that hazardous wastes be eligible for disposal in land disposal facilities. The commenter (179) also claimed that the P and U wastes may be occasionally generated in a pure form, and that they are continuously generated as leachate at landfills containing historically generated P or U wastes. If the "No Land Disposal" standard is established, management of these wastes would be virtually impossible.

Agency Response

The Agency stated in the proposal its strong preference to establish either concentration-based or method of treatment standards whenever a transfer can reasonably be performed. Having evaluated the available data, the Agency is promulgating treatment standards for all P and U wastes. The Agency is not promulgating the "no land disposal" standard for any of these wastes.

20. AUTHORIZED STATES AND NEWLY IDENTIFIED WASTES

Summary of Comments

Hazardous Waste Treatment Council (172-pp.144-46) stated that authorized States are frustrating EPA's attempts to resolve waste code carry through problems by not adopting proposed changes (at 54 FR 9603) to the permit modification system. These proposed changes would allow disposal facilities to modify their permits to receive BDAT treated new wastes and their residues if placed in a minimum technology unit. The commenter urged the Agency to promulgate such changes to the permit modification system as a HSWA provision in all States regardless of authorization status. Otherwise, the commenter argued, an artificial capacity shortage could be created, as disposal facilities would be unable to modify their permits to accept new BDAT treatment residues.

The commenter also noted the general inconsistency of State incorporated land ban regulations and urged the Agency to require consistency in State programs when adopting the LDRs.

HWLC (173-p.19) asserted that it is essential to the smooth functioning of the land ban program that the LDR requirements become immediately effective in all States.

Agency Response

The land ban rules are being promulgated pursuant to HSWA and hence take place in authorized States at the same time they take effect in non-authorized States. EPA is directed to implement these requirements and prohibitions in

authorized States, including the issuance of permits, until the State is granted authorization to do so. The Agency will work with the States to promote consistency in State programs when adopting the LDRs.

21. NPDES VS. RCRA

Summary of Comments

Ethyl Corporation (209-p.3) supported an exemption for hazardous wastewaters managed on-site in NPDES permitted wastewater treatment facilities or discharged to a POTW, since they produce a treated wastewater effluent already subject to CWA regulations. The commenter believed that such an exemption would avoid dual regulation and would be consistent with previous RCRA regulatory exclusions.

Agency Response

The Agency agrees and is in general not applying the dilution prohibition to restricted wastewaters generated and managed on-site in an attempt to integrate RCRA.

22. SOIL AND DEBRIS CERCLA ISSUES

22.1 Placement Issues

Summary of Comments

ASARCO (269-pp.40-43) argued that EPA's evaluation of how the proposed Third Third regulations affect CERCLA remedial actions is inconsistent with other positions taken by the Agency. Specifically, the commenter contended that the effect of the proposed rule is inconsistent with the Supplemental Notice and Request for Comment published by EPA on October 10, 1989, in which EPA proposed to limit the applicability of the land disposal restrictions at CERCLA sites by excluding from the definition of land disposal certain CERCLA remedies involving the excavation, treatment, and redispotion of hazardous waste. The commenter argued that it will be inappropriate to require CERCLA site managers to obtain a treatability variance to comply with the LDRs for soil or debris prior to finalizing a separate rulemaking for soil and debris wastes. The commenter proposed a delay in the application of the Third Third land disposal restrictions or treatment standards at CERCLA sites until the NCP is finalized and the interpretation of land disposal has been determined.

Agency Response

In the final revised National Oil and Hazardous Substances Contingency Plan (55 FR 8666), the Agency resolved the issue of placement and the application of the RCRA LDR standards to CERCLA soil and debris, on which it had solicited comments in the October 10, 1989, Federal Register notice (54

FR 41566). In the NCP, the Agency reasserted that the current interpretation of "placement" or "land disposal" (RCRA Section 3004(k)) would remain unchanged because the current definition was most consistent with the legislative history of HSWA. The Agency argued in that discussion that it interprets the phrase "placement . . . in" to mean the transfer of waste into a unit. This includes placement into a treatment unit and replacement into the original land-based unit from which the waste was excavated. The Agency also established an important presumption in the NCP, however, that until specific standards for soil and debris are developed, current BDAT standards are generally inappropriate or not achievable for soil and debris for CERCLA response actions and RCRA corrective actions and closures. Accordingly, persons seeking a Treatability Variance to comply with the LDR treatment standards do not need to demonstrate on a case-by-case basis that BDAT standards for prohibited hazardous wastes are inappropriate or not achievable. The Agency believes that the resolution of these two issues in the NCP address this and many other commenters' concerns.

Summary of Comments

The Fertilizer Institute (092-p.23) argued that the land disposal restrictions program will cause even further delays in implementation of cleanup at CERCLA sites. The commenter, citing the October 10, 1989, request for comment on the definition of placement recommended that EPA redefine placement to allow for the removal and redistribution of wastes anywhere within the confines of the site. The commenter suggested that a similar approach should be adopted at RCRA corrective action sites and cleanups initiated voluntarily or under State law. The commenter also recommended that the

Agency explore other mechanisms for avoiding overly stringent regulatory requirements associated with LDRs. The commenter recommended EPA adopt a separate set of BDAT standards for application at RCRA corrective action sites, CERCLA sites and under other cleanup situations. These standards would be risk-based, not technology-based. The commenter also recommended that the Agency specify a particular range of BDAT methods (e.g., land treatment to incineration) for treatment of contaminated environmental media requiring remediation. The commenter asserted that this approach would avoid the inherent delay in applying for a variance from BDAT levels established for an individual waste code.

Agency Response

The Agency believes that the positions adopted in the revised NCP regarding the LDRs will not result in unreasonable delays in the implementation of cleanup actions at Superfund sites and will result in compliance with the LDRs when these requirements are determined to be applicable or relevant and appropriate (ARARs). The Agency disagrees with the commenter that risk-based LDR standards should apply to the remediation of RCRA, CERCLA, and other types of sites. The Agency has fully justified the establishment of a technology-based LDR program in other rules, and, under Section 121(d) of CERCLA, is legally required to attain these standards when they are ARARs.

Summary of Comments

Arco (193-p.2) contended that the Third Third proposed rule should be

revised to reflect the Agency's position on the applicability of LDRs to CERCLA cleanups under the proposed rule on the NCP (October 10, 1989). The commenter also reiterated that LDRs for characteristic wastes should not be considered applicable or relevant and appropriate requirements under Section 121(d) of CERCLA under any circumstances for CERCLA response actions involving mining wastes, and referred to the comments that it submitted to EPA in a November 9, 1989, letter to EPA on the October 10, 1989, Federal Register notice as justification.

Agency Response

The Agency notes that the Third Third rule is now consistent with all other Agency guidance on complying with the LDRs for soil and debris. The Agency disagrees with the commenter that the characteristic waste LDR standards should not be considered as ARARs for CERCLA responses involving mining wastes. The status of mining and mineral processing wastes is being addressed under other EPA rulemakings, and EPA believes that this is a more appropriate forum to discuss this issue.

Summary of Comments

IT Corporation (090-p.2) and the New Jersey Department of Environmental Protection (253-pp.1-3) both supported the alternatives to land disposal published in the Agency's October 10 Federal Register notice.

One commenter (253) contended that the Agency is undertaking vigorous measures to exempt CERCLA cleanups from the LDRs. If CERCLA cleanups become exempt from the LDRs, argued the commenter, the criteria that will apply to

CERCLA and RCRA corrective action cleanups will be less stringent than those by which State-lead and PRP cleanups are conducted. The commenter suggested that EPA re-evaluate the application of the LDRs to soil and debris from CERCLA remedial sites. The commenter suggested also that EPA codify an approach that recognizes the uniqueness of all remedial activities, and ensures a high degree of environmental protection.

One commenter (090) reiterated its support for the two alternative interpretations of the term "land disposal" because they provide flexibility for the Regional offices and the regulated community to solve environmental issues on a case-by-case basis. This commenter asserted that the original interpretations (at 53 FR 51444) would force remediation and closure projects to adopt either (1) very expensive and controversial BDAT treatments, or (2) closure in place of solutions that are not environmentally sound.

The commenter cited three beneficial and effective site mitigation activities that would be possible assuming EPA adopted one of the alternative interpretations of "land disposal":

- (1) Consolidation of wastes into smaller areas, superior containment facilities, or less sensitive environments;
- (2) Conservation of resources and use of on-site wastes to implement closure or remediation activities; and
- (3) Effective treatment in another unit, such as a pug mill, reactor, tank, or thermal treatment device with replacement of treated wastes to land.

Although this commenter noted that such treatment could be performed in situ, they also noted that in situ treatment would reduce the effectiveness of

such treatment, and potentially require Clean Air Act emission controls. The commenter then gave examples of facilities that it manages where new interpretation of "land disposal" would be environmentally beneficial.

Another commenter (253) also strongly supported the proposal in the October 10 Federal Register of an alternative to the current interpretation of the term placement. This commenter noted that risk-based criteria are often more appropriate when applied to RCRA waste at cleanup sites than are the technology-based standards, because they allow for more innovative, site-specific approaches that afford a high degree of protection at a considerably lower cost than the "highly prescriptive" BDAT standards. The commenter further stated that EPA, by its current application of the concept of placement, is implying that the most cost-effective way to deal with the LDRs is to cap land disposal units and leave the waste in place with no actual treatment or destruction.

One commenter (090) recommended that EPA increase the conditions under which generators may petition for site- or waste-specific variances. According to the commenter, such expansion should allow for the application of risk-based standards that will result in treatment(s) that are protective, and also for the redeposition of waste either in the original or a different area of contamination.

Agency Response

The Agency believes that the position taken under the revised NCP addresses the commenters concern and will not hinder the selection and implementation of effective, protective remedies in a timely manner.

22.2 Other Issues

Summary of Comments

Cyanokem (110-p.32) disagreed with the definition for debris in the proposed rule. The commenter contended that buried whole drums or partially buried drums should not be considered debris. Partially buried drums, maintained the commenter, may hold substantial quantities of highly toxic waste materials that are amenable to treatment to BDAT standards prior to land disposal. The commenter contended that more appropriate definitions for debris are offered in the company's comments to EPA's proposed rule on "Applicability of Land Disposal Restrictions to CERCLA Response Actions (October 10, 1989)." The commenter suggested that EPA adopt the definitions offered by the company in its earlier comments.

Agency Response

The Agency disagrees with the commenter's assertion that the LDRs should not apply to soil and debris contaminated with a RCRA hazardous waste. EPA, and the Courts, have upheld the regulation of contaminated media as the RCRA hazardous waste. The Agency has facilitated compliance with the LDRs for contaminated debris by establishing the presumption that the LDR treatment standards cannot be attained and that a treatability variance can be granted without a case-by-case demonstration. Nowhere has the Agency stated that highly toxic waste materials contained in partially buried drums are considered debris. Instead, as in many circumstances during remedial actions, partially buried drums might potentially require several different types of

management methods, one for any material contained in the drums, one for the drums, and another for any soil contaminated with spilled wastes. The Agency's example only served to define that debris (e.g., drums) contaminated with restricted wastes may be subject to the LDR treatment standards.

Summary of Comments

Arco (193-p.2) argued that the LDRs should not apply to soil and debris contaminated with hazardous waste until the Agency has promulgated treatment standards for these wastes. Until these treatment standards are promulgated, the commenter recommended that EPA grant a variance to LDRs for all soil and debris wastes.

The commenter contended that the Agency recognizes the problems associated with applying treatment standards to soil and debris wastes associated with a cleanup. According to the commenter, if a variance to LDRs for all soil and debris wastes is granted, the Agency would be able to eliminate the tremendous administrative burden of processing the many petitions for a variance, and EPA would not be arbitrarily applying BDAT treatment levels to soil and debris wastes, the treatment of which it recognizes cannot meet such levels.

Agency Response

EPA disagrees that the LDRs should not apply to soil and debris until separate LDR treatment standards are promulgated. In response to the concern expressed by this and other commenters, and based on significant investigation of the practicability of achieving the LDR treatment standards, EPA has

established a presumption that the treatment of soil and debris cannot attain the LDR treatment standards and that a treatability variance can be received without a case-by-case demonstration. EPA believes that because it has allowed many of the variances to be granted as part of the already-occurring remedial processes (e.g., remedial investigation/feasibility study (RI/FS)), the amount of additional administrative burden resulting from this compliance process is limited.

Summary of Comments

Bioscience Management (012-p.1) stated that it strongly supported "the action proposed in the subject docket" without indicating which "action" it specifically meant. The commenter asserted that the proposed LDRs "will severely limit the application of biological methods in CERCLA actions without significant benefits." The commenter contended that "biological methods are among the most environmentally sound methods available" to treat hazardous wastes.

Agency Response

The Agency agrees that biological methods may be effective treatment remedies in many circumstances, and does not believe that its policies on how to comply with the LDRs preclude use of biological treatment.

Summary of Comments

Olin (129-pp.33-34) argued that the LDR regulations should allow a

CERCLA site remediation record of decision to include, by rule, a variance from a 40 CFR 268 treatment standard or a no-migration variance. The commenter disagreed with the provision in the proposed rule that requires CERCLA site managers to either comply with the treatment standards, or be granted a treatment standard or no-migration variance on a site-specific basis.

The commenter argued that by requiring compliance with the treatment standard, the Agency is removing the flexibility that Congress intended for the CERCLA remediation program. A variance granted on a site-specific basis, contended the commenter, should not be an alternative for two reasons:

- (1) a record of decision should not contain any potential actions by the Agency that would result in the elimination of any of the alternatives (e.g. direct land disposal or cap-in-place);
- (2) EPA should not delay site cleanups pending the receipt of a variance.

Agency Response

The Agency has addressed this comment in the context of the discussion of the LDR compliance policy contained in the NCP and in responses to other comments in this section.

Summary of Comments

Association of State and Territorial Solid Waste Management Officials (157-p.5) suggested a revision in the requirements in Part V-E of the proposed

rule, which pertains to the alternative options for complying with or legally avoiding compliance with LDR. The commenter suggested that Part V-E of the rule should include some discussion on an additional avoidance option that is available to Regional Administrators. Specifically, the commenter suggested, Part V-E should include an option that specifies the ability of Regional Administrators to declare compliance with an LDR requirement as "inappropriate and irrelevant." The commenter contended that the inclusion of this option will provide not only needed flexibility, but will take into consideration the site-specific complexities of many cleanup situations.

The commenter contended that the flexibilities available for CERCLA are not available for non-CERCLA actions and that this is an area requiring EPA's immediate attention. The commenter stated that there should be a full discussion of the impact of LDRs and available options, including any needed statutory changes under RCRA, for non-CERCLA cleanups in the final rule.

Agency Response

The Agency believes that this comment is better addressed in the context of defining "relevant and appropriate" requirements under the CERCLA program.

Summary of Comments

American Cyanamid (144-pp.3-6) maintained that non-wastewaters such as complex CERCLA sludges, the remediation of which triggers land disposal restrictions as a result of CERCLA response actions, should be included in a separate rulemaking that will establish treatability groups and treatment standards for contaminated soil and debris. In many cases, contended the

commenter, non-wastewaters are more complex or heterogeneous than the soil and debris category that EPA has already recognized to require a separate rulemaking. For example, the commenter indicated that at one of its facilities, there are approximately 800,000 tons of sludges, containing low levels of organics in an inorganic salt/matrix, that have caused the same characterization difficulties the Agency has noted for soil and debris. According to the commenter, the proposed rule will require that the wastes be treated with incineration, if in situ closure is determined to be inappropriate. The commenter argued that incineration of 800,000 tons of sludge is inappropriate based on the metals and inorganic salts present, and unjustifiable for the incremental environmental benefit achieved compared with the cost of the company's planned remediation program. The commenter asserted that incineration may be appropriate for some CERCLA wastes. This treatment method argued the commenter, should not be mandated for complex wastes on the basis of a technology transfer from less complex wastestreams.

The commenter also argued that, if, as the Agency states, a primary reason for BDAT is to create an economic incentive to minimize the generation of wastes, BDAT may not be an appropriate basis on which to set treatment standards for contamination that is in existence already. Also, when there are other environmentally protective, cost-effective remedies available, the commenter argued that BDAT is an inappropriate requirement to use as a treatment standard.

The commenter contended that, although EPA acknowledges that the LDRs may result in less environmentally effective in situ closures of CERCLA sites, they offer no alternatives. Moreover, argued the commenter, the wastes generated at CERCLA sites are not included in the capacity or cost considerations.

Agency Response

The Agency believes that site-specific circumstances cited by this commenter are better addressed in other forums. The Agency would point out that 40 CFR 268.44 always provides the option for a facility to petition the Agency to establish separate treatment standards for a waste through a treatability variance either on a site-specific or treatability group basis.

Summary of Comments

The New Jersey Department of Environmental Protection (253-p.5) requested clarification of the following: If a characteristic waste is treated to BDAT levels, (and below characteristic levels where BDAT is set at a lower level than characteristic), is it correct to assume that the waste will no longer be regulated as a RCRA Subtitle C waste? And if so, will that waste be allowed to remain on-site at remedial cleanup sites? Furthermore, this commenter noted that EPA's proposal makes it imperative that the Agency expedite its development of separate treatment standards for soil and debris, since the burden of treating contaminated soil down to these levels will be great and may have a severe effect on many cleanup actions.

Agency Response

The Agency notes that in cases where a concentration level is set for characteristic wastes, treatment to the LDR treatment standard will render the waste nonhazardous. In cases where a treatment technology is required, the

Agency believes that treatment residues will be nonhazardous. In cases where the residuals still exhibited the characteristic, they would have to be managed as hazardous wastes. The determination where treatment residuals will be managed (i.e., on or off site) is not related to whether the waste is hazardous. Instead, the subsequent waste management issue is whether the waste will be disposed of in a Subtitle C or D unit, either of which may be located on or off-site. The Agency refers the commenter to the recently promulgated National Contingency Plan (55 FR 8666, March 8, 1990) for more information regarding on-site vs. off-site management of waste residuals during Superfund remedial actions.

23. WASTE CODE CARRY THROUGH

Summary of Comments

Nortru (241-pp.14-16) asserted that in complying with the proposed derived-from rules and "carry through" principle, generators will over-classify their waste materials. The commenter stated that this over-classification will result in more than necessary treatment of waste materials, such as a mixture of D001 and a small amount of U056 wastes that may be suitable for distillation or fuel substitution being sent for incineration. The commenter also asked the Agency to reassess the impact of the proposed rule for a potential reduction in appropriate recycling methods - actions that are both contrary to RCRA intent and in opposition to the Agency's new pollution prevention policy.

Agency Response

The Agency does not believe that complying with the derived-from and mixture rules will result in a significant number of generators over-classifying and over-treating their waste. In response to the commenter's example, a mixture has more than one applicable concentration-based standard for a particular constituent, the most stringent standard must be met prior to land disposal (see 40 CFR 268.41(b)). If a mixture cannot be treated to meet the most stringent standard, one may petition the Agency for a variance from the treatment standard pursuant to 40 CFR 268.44. In addition, if a treatment standard for a listed waste already addresses the characteristic property, then there need be no separate treatment for the characteristic property. The

Agency is also in the process of developing de minimis levels for certain hazardous constituents in listed waste below which the waste will no longer be a hazardous waste for purposes of Subtitle C regulation. Finally, the Agency does not understand the commenter's concern about the impacts on recycling since the LDRs never preclude legitimate recycling.

24. DELAYED EFFECTIVE DATE

Summary of Comments

Cyanokem (110-p.41) recommended a delayed effective date of 60 days to allow the regulated community to implement the rule properly. Cyanokem stated that the regulated community will need this extra time due to the large number of waste codes and uncertain BDAT standards. Monsanto (116-p.21) and Kohler Co. (L009-p.3) also requested time extensions to allow industry to find and or install treatment systems for the proposed rule.

Agency Response

As noted in the preamble, the effective date of the rule is August 8, 1990, which is three months after the statutory date of May 8, 1990. The effective date delay is in order to allow affected generators, treaters, and disposers sufficient time to come into compliance with these regulations.

25. DOCKET ISSUES

Summary of Comments

Monsanto (116-p.26) informed the Agency of problems encountered by Monsanto in its attempt to obtain information from the docket for this rulemaking. The commenter noted that appointments were required to access the docket, with delays of one or two days. The organization of the docket and the docket index also made it difficult for the commenter to obtain a meaningful summary background document from miscellaneous correspondence and reports. The commenter noted that the docket contained no background document on lab packs. Given the short comment period, the commenter believed such access limitations and delays hindered meaningful review and follow-up on the docket.

Agency Response

The Agency acknowledges difficulties in gaining access to the document room and apologies to any commenters who were inconvenienced. The Agency attributes such problems to its limited budget and staff combined with the mandated court deadline for promulgating the Third Third LDR.

26. DEFINITION OF LISTED HAZARDOUS WASTE

Summary of Comments

IRECO (126-p.4) noted that the Agency's discussion of the applicability of treatment standards to residues identified as derived-from wastes fails to account for 40 CFR 261.3(a)(2)(iii), which exempts non-characteristic mixtures of solid waste and waste listed solely for a characteristic from the definition of a hazardous waste. The commenter argued that EPA previously referenced this citation in the First Third Rule to remove from hazardous waste regulation the residues of K044, K045, and K047. The commenter suggested that the Agency reiterate the applicability of this citation with respect to wastes listed solely for a characteristic.

Agency Response

The Agency agrees with the commenter with one clarification: the exemption referenced under 40 CFR 261.3(a)(2)(iii) applies to wastes listed only for a Section 261 Subpart C characteristic when mixed with another solid waste, and the resultant mixture no longer exhibits any characteristic of hazardous waste identified in Section Subpart C.

Summary of Comments

Allied-Signal (267-pp.53-54) asserted that the Agency should exclude spills of characteristic wastes into wastewater from the definition of hazardous waste. The commenter noted that 40 CFR 261.3(a)(2)(iv) now excludes

from the definition of a hazardous waste mixtures of wastewaters and discharges of listed wastes -- not characteristic wastes -- from de minimis losses due to certain material handling operations. The commenter urged that the Agency expand the scope of Section 261.3(a) to exempt mixtures of characteristic wastes and wastewater resulting from the same type of de minimis spills from the definition of hazardous waste. The commenter stated that the burden of requiring BDAT for these mixtures would outweigh the environmental benefit, and argued that these spills are ordinary occurrences, usually insignificant, and adequately handled by a facility's NPDES permitted wastewater treatment system.

Agency Response

This comment is beyond the scope of this rulemaking and EPA is not responding to it.

27. REGULATORY IMPACT ANALYSIS ISSUES

Summary of Comments

NFPA (095-pp.7-8) noted that the Regulatory Impact Analysis (RIA) did not identify any substantial human health benefits or risks avoided from prohibiting the land disposal of corrosive characteristic wastes or by treating the waste to below the characteristic threshold. NFPA also noted that the Agency did not quantify any resource or ecological benefits associated with the prohibition of corrosive wastes from land disposal. NFPA contended that this did not comport with Judge Silberman's observation in Hazard Waste Treatment Council v. EPA (886 F.2d 355; D.C. Cir. Sept. 15, 1989; "HWTC III") that "it is incumbent upon EPA to identify the incremental 'threats to human health and the environment' that it hopes to address by opting uniformly for more stringent technology-based standards in lieu of health-based standards of whatever origin." (HWTC III at 1249, concurring opinion).

BP America (098-p.17) also commented that several of the provisions to the rule do not result in any environmental benefit to counter the tremendous cost of compliance with these provisions.

Agency Response

In the court decision for Hazardous Waste Treatment Council v. EPA, the panel from the Court of Appeals for the District of Columbia Circuit held that the literal language of Section 3004(m) does not mandate a risk-based or health-based approach for selecting treatment standards, and that the Agency's

interpretation that treatment standards were to be technology-based was reasonable. The Court concluded, however, that EPA had failed to adequately explain its policy preference for technology-based treatment standards, over the proposed approach based on screening levels. EPA, therefore, clarified its selection of technology-based standards over risk-based screening levels in the Federal Register (Volume 55, February 26, 1990, p.6640). As discussed below, there are risks from disposal of corrosive wastes although there is some uncertainty in quantifying these risks.

The Agency has identified less than one health case avoided and eleven individuals no longer exposed to non-carcinogen contaminants at a level exceeding its reference dose (RfD) by restricting the continued land disposal of D002 (corrosive) wastes. Chronic carcinogenic and non-carcinogenic risks brought about by D002 wastes are caused by hazardous constituents present in the waste (e.g., dissolved toxic metals). The Agency believes that there are other benefits to the environment resulting from restricting corrosive wastes from land disposal that may not appear in these health benefits. For example, there may be acute health effects associated with the untreated management of corrosive wastes.

Also, corrosive wastes affect the integrity of landfill liners. By restricting the disposal of corrosive wastes, the life of a landfill liner may be extended, thus preventing the contamination of nearby aquifers by other hazardous constituents co-disposed of in the landfill. The Agency did not quantify any resource or ecological benefits associated with the prohibition of restricted wastes from land disposal because ecological risks are extremely difficult to quantify. The Agency believes, however, that there are ecological benefits associated with restricting corrosive and other hazardous wastes from land disposal. The record is not as complete concerning the

ecological effect of a requirement beyond removal of the characteristic of corrosivity.

Summary of Comments

Several commenters (Morton International (181-p.2), American Cast Metals Association (ACMA) (254-pp.1-2), American Foundrymen's Society, Inc. (AFS) (222-pp.1, 5-6), Synthetic Organic Chemical Manufacturers Association (SOCMA) (108-pp.27-32), and BP America (098-p.17)), asserted that EPA underestimated the quantity of waste affected by the Third Third rule and, therefore, underestimated the costs and economic impacts of the rule.

ACMA and AFS contended that the Agency has severely understated the quantity of potentially EP toxic wastes generated by foundries and the number of facilities affected by this rule. ACMA stated that EPA identified only 448 of 7,000 production facilities that are represented by SIC 33 - Primary Metals, and that only 36 million gallons of Third Third wastes were estimated to be generated by these 448 facilities. ACMA estimated that foundries in SICs 332 and 336 alone generate 40 million gallons of EP toxic materials each year. ACMA stated that estimates of foundry wastes disposed of are based on disposal documents submitted to EPA by generators who are in compliance with EPA disposal regulations and that the Agency has failed to consider the number of firms not in compliance with current regulation. ACMA also criticized the Agency for not conducting a Regulatory Flexibility Act; ACMA stated that 80 percent of U.S. foundries employ fewer than 50 people and the impact of the rule upon them remains unclear.

Two commenters (SOCMA and BP America) stated that EPA's expansion of the dilution rule combined with the requirement to treat characteristic waste

below threshold values expands the universe of wastes and facilities anticipated to be affected by this rule. SOCMA stated that the Agency did not consider those characteristic wastes managed in RCRA-exempt units which, while not previously reported, may now be affected insofar as they are either managed through impermissible dilution or are treated, stored, or disposed of as nonhazardous in land disposal units without meeting the proposed BDAT standards for characteristic wastes.

Agency Response

The RIA performed for this rule used data from both the 1986 "National Survey of Hazardous Waste Treatment, Storage, Disposal, and Recycling Facilities" (the TSDR survey) and the "National Survey of Hazardous Waste Generators and Treatment, Storage, and Disposal Facilities Regulated under RCRA in 1981" (1981 RIA Mail survey) in order to estimate the costs and economic impacts associated with the Third Third rule. The data from the TSDR survey were updated as a result of the capacity analysis performed to determine the need of capacity variances for wastes affected as part of the proposed rule. The Agency believes that it used the most current data available at the time of the analysis in order to determine the volume of restricted waste and the associated cost and economic impacts.

The Agency has reviewed its estimates of the quantity of waste affected by the dilution prohibition. Under today's rule, in most cases, facilities (subject to either NPDES or UIC requirements) that generate and manage characteristic waste may continue to dilute in order to achieve the treatment standards. Also, in all cases, non-toxic characteristic wastes may be diluted in order to achieve the treatment standards (a complete discussion of these

issues is provided in the final rule). This issue is addressed in the RIA accompanying today's final rule.

In promulgating today's final rule, the Agency is in most cases setting treatment standards for most characteristic wastes to a concentration level equal to or greater than the characteristic level. For certain pesticide wastes the Agency is setting treatment standards either below the characteristic level or as a specified treatment technology. Therefore, few Subtitle D disposal facilities will be significantly affected because they have to treat characteristic wastes to below characteristic level.

EPA evaluated the economic effect of the Third Third rule on small entities, here defined as firms employing fewer than 50 persons. In its economic analysis, the Agency identified only three small businesses affected by the final rule. None were determined to be significantly affected. The Administrator therefore certified that Part 268 does not have significant economic effects on a substantial number of small entities. As a result, the Agency did not prepare a formal Regulatory Flexibility Act.

Summary of Comments

USPCI (137-p.3) asserted that the Agency has not fully evaluated the extensive waste analysis and record-keeping requirements imposed under 40 CFR 268.7, and that the EPA's statement in the proposed rule saying that no new information requirements are being imposed by this rule is in error. The Agency's assessment, the commenter argued, does not consider the large burden of providing new BDAT standards and subcategories, as well as the overlap of waste codes. The commenter also expressed a general concern that the issue of paperwork burden has not received serious attention in the LDR rulemakings.

For example, the commenter noted that it spends more than the 0.55 hours that EPA estimated in the First Third Rule for reviewing lab packs, and that this is the only specific circumstance where EPA has attempted to quantify LDR paperwork burdens.

Agency Response

All information collection requirements in this rule were promulgated in previous land disposal restrictions rulemakings (including those for the Underground Injection Control Program) and approved by the Office of Management and Budget (OMB) at that time. Since there are no new information collection requirements being promulgated today, an Information Collection Request has not been prepared. In its previous attempts to estimate the amount of time required to complete LDR paperwork, the Agency had used its best judgement in determining these time requirements.

Summary of Comments

Tyler Pipe (131-p.2) reported spending over \$5 million in the last two years to assure continued long-term compliance with the existing RCRA rules for characteristic wastes. This investment would be frustrated by the proposed rule. The commenter considers the proposed requirement to treat wastes that are no longer hazardous as inequitable to companies that have spent millions of dollars, have gone completely through the Part B permitting process, and have implemented systems and operating procedures that provide a high level of protection to human health and the environment.

The Synthetic Organic Chemical Manufacturers Association (108-pp.13-14)

expressed similar concerns. It asserted that EPA grossly underestimated the impact of the proposed treatment standards on current waste management practices. Contrary to EPA's projections, implementation of this proposal would have a serious and adverse impact on the environmental practices of the regulated community.

This commenter represents more than 180 companies involved in the manufacture, distribution and marketing of organic chemical products. The majority of these firms are small businesses. The commenter is particularly concerned about the inability of small companies and small facilities to interpret and adapt their operations to conform with the changes to the RCRA program proposed by the Agency, especially within a five-month period. The commenter stated that many of these companies and facilities have carefully structured their operations to minimize the regulatory burden and impact of the RCRA program. These companies often treat characteristic wastes to nonhazardous levels in units that are specifically exempt from the RCRA permit program, such as elementary neutralization units or wastewater treatment units. These wastes are then often further treated or disposed, either on-site or off-site in land disposal units. Presently, these facilities are not regulated under Subtitle C.

SOCMA asserted that the proposal for characteristic wastes was an abrupt policy departure that would cause companies to suddenly discover that their disposal of nonhazardous waste is prohibited. These companies would have to identify and implement alternative waste management practices within an impossibly short time frame. In many instances, small companies will be at a significant disadvantage in locating facilities that will accept their wastes and can meet the LDR treatment standards. These companies will also, due to a lack of manpower, resources and sophistication, be less capable than larger

firms to suddenly adjust their on-site waste management practices to comply with the proposed rule.

The University of California (182-p.) suggested that a practical interpretation of Section 3004(m) would allow the Administrator to require treatment for any waste until its hazard reaches the characteristic level.

Agency Response

EPA realizes that the proposed rules for characteristic hazardous wastes would have created serious implementation problems for many firms, and adversely affected substantial investments in waste management systems. In response to these and other concerns, EPA has revised the final rule, generally making it feasible for firms to comply with the rules without serious difficulty. For example, EPA has restricted the point of generation approach to selected EP toxic wastes, excluded wastes managed under the Safe Drinking Water Act, limited applicability of the land disposal restrictions to exclude wastewaters managed under the CWA, and modified the dilution rules to allow dilution of nontoxic wastes.

Under the final rules, characteristic wastes, other than toxic non-wastewaters, that are treated (or diluted) to below the characteristic levels are not subject to the land disposal restrictions. These wastes can continue to be managed in units that are exempt from the RCRA permit program, such as elementary neutralization units or wastewater treatment units. Firms that generate only characteristic wastes, other than toxic non-wastewaters, and treat (or dilute) them to below the characteristic levels will not be subject to the land disposal restrictions.

EPA does not expect the land disposal restrictions for characteristic

wastes to affect many firms that are not already regulated under RCRA Subtitle C. While small firms may have a disadvantage relative to large firms in adjusting their facility operations and waste management practices to comply with regulations, EPA believes that the final rule integrates the LDRs with CWA and SDWA programs in a manner that avoids significant adverse effects on existing waste management systems.

28. MISCELLANEOUS

Definition of Wastewaters

Summary of Comments

Envirosafe (81-p.9) expressed concern that the Agency has not provided a consistent definition of wastewater for the Land Disposal Restrictions programs as well as for F001, F002, F003, F004, and F005 solvent water mixtures.

Agency Response

The Agency has provided a regulatory definition of wastewater and non-wastewater in the proposed and final rules. The commenter should refer to Section 268.2 for these different definitions and to the preambles for the basis of these definitions.

General Policy Issues

Summary of Comments

The Air Force (135-pp.15-16) asserted that collected liquids within a leak detection/collection port should be allowed to be placed back into an impoundment that manages wastewaters, and further noted that the Agency should at least address the conditions under which this is a permissible activity.

The commenter also stated that environmentally protective actions taken

under contingency plans (i.e., transfer of wastes from a leaking impoundment into an adjacent non-leaking impoundment) for treatment and storage .
impoundments need to be addressed in the rulemaking with respect to the LDRs.

Finally, the commenter claimed that the Agency should clarify that restricted wastes that are generated from land disposed non-prohibited wastes would not become subject to the LDRs until the wastes are removed.

Agency Response

The commenter is actually referring to a land disposal issue which is addressed in RCRA Section 3004(k).

29. MIXED HAZARDOUS WASTE

Summary of Comments

Several commenters (NELRAD (147-p.1-3), Department of Energy (198-p.15-16), Arizona Public Service Company (L004-pp.1-2), Chemical Manufacturers Association (L007-pp.43-44), Advanced Nuclear Fuels (L013-pp.1-2), Babcock and Wilcox (L001-p.1), California Department of Health Services (245-pp.1-3), University of California (182-p.1), Westinghouse Electric (167-pp.1-2) Texas Utilities Services (123-p.2), American Council on Education and the National Association of College and University Business Officers (248-p.3), and the Utility Solid Waste Activities Group (204-p.34-36)) indicated their support for EPA's proposed two-year variance for mixed wastes.

Several of these commenters (198, 204, and 205) also indicated that although the two-year capacity variance is necessary, the two-year time period is unlikely to be enough time to develop treatment and disposal capacity for mixed radioactive wastes. CDHS noted the long lead times involved in the siting, design, construction, and development of licensed and permitted treatment, storage, and disposal facilities require a longer grace period than allowed by the proposed two-year national capacity variance. DOE noted that even with a two-year variance, many DOE facilities will need to apply for additional case-by-case extensions to the effective date. USWAG pointed out several reasons why a two-year capacity variance is insufficient:

(1) The regional low-level radioactive waste disposal compacts established in accordance with the Low-Level Radioactive Policy Amendments Act of 1985 ("Amendments Act") restrict access to the regional disposal facilities

to members of the compact region;

(2) Mixed waste facility development plans and schedules differ among regions and States; and

(3) Under the land disposal restrictions, the Agency's requirement of specific treatment technologies for mixed waste essentially require the States to develop particular mixed waste treatment facilities in order to comply with the Amendments Act. This would affect States' abilities to comply with the Act in the case of radioactive wastes which are also hazardous.

The commenter recommended that EPA develop a workable variance mechanism for mixed waste that will remain in effect until adequate mixed waste treatment and disposal capacity is available throughout the industry.

Agency Response

The Agency is aware of the issues regarding mixed waste, and will issue a separate notice announcing its resolution of the matter in 90 days.

Summary of Comments

Natural Resources Defense Council (156-pp.1-2) commented that the proposed national capacity variance was unnecessarily broad. One of NRDC's main points was that EPA should grant variances only for specific wastestreams where data have been developed or at least confirmed by EPA. Citing the availability of treatment capacity for many listed and characteristic wastes, NRDC indicated that unless EPA determines such treatment technologies inappropriate for mixed radioactive wastes, then the two-year national

capacity variance is unnecessarily and unlawfully broad and allows the Department of Energy to land dispose waste that could otherwise be treated. NRDC also suggested that EPA condition the national capacity variance on DOE waste reduction efforts.

Agency Response

The Agency disagrees with NRDC's claim that the national capacity variance is unnecessarily and unlawfully broad since the capacity analysis was based on detailed, stream-specific data supplied by DOE as well as the best available non-DOE sources. Although sufficient treatment capacity may exist at certain facilities for certain mixed radioactive wastes, EPA's capacity analysis methodology is designed to access available treatment capacity at the national level. EPA believes the capacity analysis performed demonstrates a mixed RCRA/radioactive waste capacity shortfall for all alternative treatment technologies at the national level.

Summary of Comments

Envirocare of Utah (208-pp.1-4) raised the question of whether naturally occurring radioactive materials (NORM) containing RCRA listed or characteristic hazardous wastes fall under the definition of mixed RCRA/radioactive wastes. The commenter also raised the question of whether the national capacity variance extends to these materials.

Agency Response

The Agency maintains that because NORM and accelerator-produced radioactive materials (NARM) are not regulated by the Atomic Energy Act, these materials do not fall under the definition of mixed wastes. Consequently, the national capacity variance for mixed wastes does not extend to NORM/NARM matrices mixed with RCRA hazardous wastes. EPA recognizes that its information for the proposed rule on mixed wastes generated and managed by non-DOE facilities may be incomplete.

Summary of Comments

Sandia National Labs (118-p.4) disagreed with EPA's determination that mixed wastes containing solvents, dioxins, or California List wastes be subject to the established treatment standards after the effective date has passed. The commenter asserted that restrictions for these wastes had been developed without consideration of several factors, including the difficulties in treatment and waste analyses, associated personnel dose equivalent, environmental release of radioactivity, lack of validated test procedures, and lack of adequate treatment technology. The commenter noted that it may be unable to comply fully with the proposed concentration-based standards since a significant portion of its waste cannot be analyzed in laboratories due to the high activity. The commenter further pointed out that a portion (less than five percent) of its mixed waste contains solvents for which incineration is listed as a potential treatment category. However, under New Mexico House Bill 59, a moratorium on most forms of incineration exists in the State.

Agency Response

The Agency is aware of the issues regarding mixed waste, and will issue a separate notice announcing its resolution of the matter in 90 days.

Summary of Comments

Texas Utility Services (123-p.2) and NELRAD (147-pp.1-3) stated that because of the dual regulation of mixed waste by the Nuclear Regulatory Commission (NRC) and EPA, the Agency should defer the imposition of specific treatment standards for hazardous waste that may directly conflict with NRC's As Low As Reasonably Achievable (ALARA) policy. Nelrad (147) also noted that licensees would be in a quandary over preferred and proper management options (e.g., the testing procedures described in the proposed rule Part 268, Subpart A, 267.7(b)(2), which do not conform to the ALARA principle 10 CFR 20.1(c)). Therefore, different risk factors, agency philosophies, and management safeguards for each component of the single waste form would make effective management difficult for licensees.

Agency Response

During the two-year national capacity variance being granted to mixed waste, the Agency will resolve any conflicts between EPA's treatment standards and NRC's ALARA policy, if they exist. EPA is not presently aware of any such conflict.

Summary of Comments

Dow (179-p.33) noted that Nuclear Regulatory Commission (NRC) regulations may ban the disposal of mixed wastes from "States in compacts where the compact States (i.e., non-host States) have no permitted disposal facility." The commenter, therefore, asserted that EPA should allow the storage of mixed waste in the event that no approved, legal disposal facility is available.

Agency Response

EPA is addressing issues related to the storage of mixed waste in a separate context, expected to be announced within 90 days.

Summary of Comments

Chemical Manufacturers Association (L007-p.43) indicated that EPA should more clearly state that the national capacity variance applies to both listed and characteristic mixed radioactive wastes by editing the capacity variance statement in the proposed rule at 54 FR 48511-2, adding the phrase "... including wastes that exhibit any of the hazardous waste characteristics identified in Subpart C of 40 CFR Part 261. . . ."

Agency Response

The Agency reiterates that the national capacity variance applies to characteristic RCRA wastes as well as listed wastes. This is clearly stated

in the preamble to the final rule.

Summary of Comments

The Department of Energy (260-p.2) asked whether the lead and mercury radioactive materials for which EPA proposed treatment standards were still subject to the two-year national capacity variance.

Agency Response

The national capacity variance covers all mixed radioactive wastes, including the lead and mercury mixed radioactive wastes for which standards have been promulgated.

30. Deepwell Injected Wastes

30.1 Proposed Land Disposal Restrictions for Injected Characteristic Wastes

The Agency received a number of comments concerning the proposed land disposal restrictions for injected Third Third wastes, specific issues included the inapplicability of the proposed treatment standards for D002 corrosive wastes to injection practices; UIC permit conditions superseding treatment standards; the California list prohibitions superseding the Third Third prohibitions for characteristic wastes when capacity does not exist.

30.1.1 Applicability of Proposed Treatment Standards for Injected D002 Wastes

Summary of Comments

Five commenters stated that the treatment standard requirement for D002 should not be applied to injected wastes (American Cyanamid (087, L028), BP America (098), Monsanto (116), Vulcan (128), CMA (L007), Racon (L023)). The treatment standard for D002 in the proposed rule was neutralization to a pH between 6 and 9 with the precipitation of insoluble salts. The commenters believed that this requirement will inhibit the operation of some injection wells which need an injectate with a low pH to facilitate flow in the injection interval. The commenters also provided studies that show a low pH of the injectate results in clay swelling which provides an additional safeguard of environmental protection (American Cyanamid (087), BP America (098), CMA (L007)).

Agency Response

The Agency generally agrees with these comments. However, several of these comments were expected when the Agency requested comments in the Third Third proposed rule (54 FR 48423) for UIC permits to supersede treatment standards. The Agency recognized the fact that a low pH may be needed to facilitate the operation of an injection well.

The Agency has revised the treatment standard data for D002 in the final rule. The revised treatment standard for D002 is neutralization to a pH between 2 and 12.5. The Agency feels that this requirement should not interfere with the operation of any injection facility nor result in any deviation from Agency policy.

30.1.2 UIC Permits Superseding D002 Treatment Standards

Summary of Comments

Several commenters supported the proposal that UIC permit conditions should supersede treatment standards for D002 wastes (AISI (160), du Pont (189), Ethyl Corporation (209), DSI (261), Allied-Signal (267), Fermenta ASC (280) Racon (L023)). However, other commenters pointed out that this provision does not grant much relief because many injection wells do not have a pH requirement in the permit (American Cyanamid (087), BP America (098), Monsanto (116), and CMA (L007)).

Agency Response

The Agency provided the provision of UIC permits superseding treatment standards for D002 corrosives because low pH may be needed for the injection operation. However, due to the fact that many Class I injection well permits are completed by primary States that were delegated UIC authority, there are variations in UIC Class I permit requirements across the nation. The Agency therefore agrees with the comments that a provision for UIC permits to supersede treatment standards is not necessarily sufficient in all cases. However, the Agency has changed the treatment standard for D002 to a pH between 2 and 12.5 in the final promulgation of the rule. Based upon this change in requirements, the Agency believes that a provision that UIC permits supersede treatment standards is no longer needed.

30.1.3 California List Prohibition Corrosives Should Not Supersede Third Third Prohibitions For Characteristic Wastes When Capacity Does Not Exist

Summary of Comments

Four commenters did not agree with the Agency decision to have the prohibitions for California list corrosives supersede Third Third prohibitions. The commenters believed that a two-year capacity variance for corrosive wastes was needed because treatment capacity for the large volumes of corrosive wastes still does not exist (American Cyanamid (087), BP America (098), du Pont (189), CMA (L007)). The preamble explains that although a two-year capacity variance for injected D002 is proposed, the California list

prohibitions for wastes with a pH less than 2 will be in effect and banned from land disposal on August 8, 1990. One commenter pointed out that if the treatment standards for Third Third wastes preempt California list wastes, so should the Third Third capacity variances (CMA, (L007)).

Agency Response

The Agency provides capacity variances in order to provide some regulatory relief for operators who are affected by the land disposal restrictions but did not have the capability to treat the wastes. Capacity variances decisions are based upon the availability of treatment. If sufficient treatment capacity did not exist, Congress allowed up to two years for an operator to develop their own treatment capabilities. A two-year capacity variance was provided for California list corrosives with a pH less than 2 on August 8, 1988, and expires on August 8, 1990. The Agency believes that to extend the variance beyond two years would be acting against Congressional intent. Additional time for the development of treatment capabilities can be provided through case-by case extensions.

30.2 Application of Dilution Prohibition to Injected Characteristic Hazardous Waste

Summary of Comments

Several commenters expressed concern over the impact of the dilution prohibition on present underground injection practices (American Cyanamid (087), BP America (098), Monsanto (116), CMA (L007)). Many facilities aggregate wastes in centralized treatment areas prior to injection. The result of the "blending" of wastes often removes the hazardous characteristics of the wastes.

One commenter pointed out that many nonhazardous Class I injection facilities will be impacted by the dilution prohibition as it was proposed but are unaware of the potential effect of the Third Third prohibitions (CMA (L007)). The commenter also cited the Agency's present time-frame for the no migration petition process takes a minimum of eighteen months to complete. The potentially impacted Class I nonhazardous injection operators will be unable to get a no migration petition approved in time before the Third Third prohibitions take effect although the injection wells may be functioning in an environmentally protective manner (CMA (L007)).

Agency Response

A complete response to these comments is found in the preamble for the Third Third final rule.

30.3 Injected U and P Waste codes Should Be Provided Capacity Variances

Summary of Comments

Several different commenters maintained that the Agency should provide various U and P waste codes a two-year capacity variance due to several different factors. A few commenters supported this claim by pointing out that the Agency had underestimated the volumes of U and P waste codes being injected (American Cyanamid (087, L028) Vulcan (128), Gibraltar (264)). Other commenters claimed that because U and P wastes are often mixed before injection, they are difficult to isolate, and should be provided a capacity variance (American Cyanamid (L028), BP America (098), BP Chemicals (216), Hoechst-Celanese (L010)).

One commenter provided evidence that a specific waste code, ethyl oxide (U115), is being injected which the data indicated in the proposed rule is not being injected (Hoechst-Celanese (047)). Due to the infrequent generation and physical danger of handling this waste, it needs to be mixed with water immediately. The resulting volume of U115/water waste exceeds available treatment capacity and should be provided a two-year capacity variance.

Agency Response

Detailed responses to these comments may be found in the response to capacity comments section of the Third Third rule response to comment document. In general, the Agency solicited comments on volume U and P waste codes being injected for the capacity analysis used in the Third Third

rule. Because the land disposal restrictions apply at point of generation, the volumes for listed wastes are applied at point of generation. If the commenter did not provide specific volumes of U and P wastes produced at point of generation which would alter the Agency's decision, the capacity variances did not change from the proposed rule.

Concerning de minimis volumes of U and P wastes being deepwell injected, the land disposal restrictions may not apply. The preamble should be consulted for a more specific discussion on this subject.

The Agency recognizes the difficulty encountered by industries that have injection facilities impacted by the Third Third rule. The operators will have to make physical changes to piping and storage facilities within the plant and develop some form of transportation to handle the shipment of wastes to treatment facilities. In addition, many operators have petitions being reviewed but not yet acted upon by the Agency. If the no-migration petitions are approved, these facilities will be exempt from the land disposal restrictions. Due to the reasons above, the Agency is granting a six month variance for on-site injection facilities. The Agency believes this will provide operators sufficient time to isolate various U and P waste codes, if their petitions are not granted by the Agency.

The Agency has reviewed the commenter's request for a two-year capacity variance for injected U115 wastes. Due to the dangers involved in the handling of this waste and the need to mix the waste with water, the volume of the mixture of U115 and water will be used in the capacity analysis. The BDAT for U115 is incineration and there exists sufficient treatment capacity for this waste. Therefore the waste code U115 will not receive a national capacity variance.

30.4 Support for the Capacity Variances for K011, K013, and K014

Summary of Comments

Several commenters supported the Agency's proposal to grant two-year capacity variances to injected K011, K013, and K014 wastewaters (American Cyanamid (087), Monsanto (116), du Pont (189)). One commenter requested that K014 should be given a two-year capacity variance regardless of its physical form and treatability group. Another commenter argued that the Agency should abandon the no-migration petition process and determine that injection of K011, K013, and K014 is protective of human health and environment (AN UIC Group (219)).

Agency Response

In the final promulgation of the Third Third rule, the Agency is granting two-year national capacity variances to injected K011 wastewaters, K013 wastewaters, and K014 wastewaters and non-wastewaters. The Agency is granting these capacity variances due to the fact that there is insufficient available treatment capacity available. These wastes will be banned from underground injection on May 8, 1992. The Agency also believes that the comment of abandoning the petition process is not germane to the Third Third rule. This comment was previously addressed in the Hazardous Waste Disposal Injection Restrictions framework rule. See 53 FR 28121 and 28118.

30.5 No Migration Petitions for UIC Facilities and Third Third Effective Ban Dates

Summary of Comments

There were several commenters who requested that the Agency provide some regulatory relief for deepwell injected facilities with petitions that are not acted upon before ban dates (US Ecology (226), Allied-Signal (267), Monsanto (279)). The commenters expressed concern that the ban dates would unnecessarily dislocate industry because the injection well would be forced to be shut down before the Agency had made a decision on the protectiveness of the injection well.

Agency Response

The Agency is aware of the concerns of operators with pending petition decisions. Final promulgation of the Third Third rule will critically affect the management of large volumes of wastes disposed of by injection wells. However, final Agency actions or submitted petitions will not be addressed in this rulemaking.

A more detailed response to these comments may be found in the response to capacity comments section of the Third Third final rule response to comment document.

31. COMMENTS ON THIRD THIRD ISSUES RECEIVED DURING SECOND THIRD RULEMAKING

Summary of Comments

Several commenters (API-034), (BFI-029), (Amoco-L003), (SOCMA-020), (CMA-034), (Monsanto-019), and (American Iron and Steel Institute-033) stated that EPA's interpretation that characteristic wastes are subject to the "hard hammer" on May 8, 1990, is flawed. They noted that the First Third rule preamble (August 17, 1988, 53 FR 31144) and the Second Third proposed rule (at 54 FR 1093) stated that the hard hammer applied to both "hazardous wastes listed or identified prior to the enactment of HSWA," a reversal of the Agency's 1985 position (see 50 FR 23252, May 31, 1985) stating that the "hard hammer" did not apply to characteristic wastes.

Agency Response

The Agency maintains its position that the hard hammer rules applies to characteristic wastes. However, because treatment standards are being promulgated for all characteristic wastes, the commenters' concerns become moot.

Summary of Comments

One commenter (DOE-028) supported the interpretation that the "hard hammer" is applicable to all characteristic waste. The commenter suggested that this approach would "essentially set characteristic levels as the

treatment standards, and allow generators to determine, on a case-by-case basis, the most appropriate way to render characteristic wastes nonhazardous."

Agency Response

The Agency agrees with the commenter that the hard hammer rule applies to characteristic wastes as well as listed wastes. The Agency notes that treatment standards are being set for all characteristic wastes. Some of these standards specify the method of treatment to be used to remove the characteristic and thus, absent an equivalent treatment method petition, there will be some cases in which the treater is not free to use any method or technology to treat the waste. Finally, the Agency notes that it is prescribing treatment concentrations to below the characteristic level for EP toxic pesticide non-wastewaters, and it maintains the authority to do so and may do so in future rulemakings.

Summary of Comments

Several commenters (Amoco-L003), (CMA-034), (HWTC-031), and (SOCMA-024) stated that EPA should not establish a "no land disposal" standard for characteristic wastes. The commenters stated that the "no land disposal" standard circumvents the establishment of treatment standards for characteristic wastes. CMA stated that EPA may not lawfully establish "no land disposal" as BDAT for any waste, listed or characteristic.

Agency Response

The Agency stated its view in the First and Second Third rules that the no land disposal standard is entirely lawful. However, due to pragmatic problems associated with this standard, the Agency is revoking the previously promulgated standards and replacing them with concentration-based treatment standards or specified methods. The Agency discussed its interpretation at length in a May 2, 1989, Federal Register notice (54 FR 18836).

Summary of Comments

Several commenters (CMA-034), (DOE-028), (API-034), (RSR Corporation-016), (Amoco Corporation-L003), and (Cyanamid-037) stated that the "floor" for any treatment standard must be the characteristic level itself, because wastes below that level are no longer hazardous and that EPA is authorized to regulate only hazardous wastes.

In contrast, one commenter (Hazardous Waste Treatment Council-031) stated that the BDAT standards should take precedence over the characteristic levels wherever the former is more stringent. The commenter stated that Congress intended that treatment standards be set as low as the best available treatment technology could achieve.

Agency Response

The Agency responds that its authority to require treatment to below characteristic levels is not derived solely from Congress' action in allowing

EPA to require treatment methods that might go below characteristic levels. The Agency agrees that it does indeed have the authority to require treatment methods that go below characteristic levels. Given that the statute is ambiguous on the point at which the prohibition for characteristic attaches, it is a reasonable construction to say that the prohibition can attach at the point of generation. See also the following provisions:

- Section 3004(a)(3) authorizes EPA to set requirements respecting the "treatment, storage, or disposal" of hazardous waste "pursuant to such operating methods, techniques, and practices as may be satisfactory to the Administrator."
- EPA must specify levels or methods of treatment that "substantially diminish the toxicity of the waste or substantially reduce the migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized."
Section 3004(m).
- EPA must take into account ". . . the long-term uncertainties associated with land disposal," in determining the scope of prohibited hazardous waste (Section 3004(d)(1)(A)).
- EPA must take into account ". . . the goal of managing hazardous waste in an appropriate manner in the first instance," in determining the scope of the land disposal prohibitions (Section 3004(d)(1)(B)).
- EPA must take into account ". . . the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous wastes and their hazardous constituents" in determining the scope of prohibited hazardous waste (Section 3004(d)(1)(C)).

Summary of Comments

One commenter (API-034) stated that, with respect to wastes that cannot be treated to eliminate the applicable characteristic, EPA should set numerical treatment standards based on the potential health risks of the waste and of the treatment process.

Another commenter (The Institute of Chemical Waste Management-030) stated that, wherever possible, EPA should establish concentration standards rather than specific technologies as the treatment standards for characteristic wastes.

Agency Response

The Agency has stated its strong preference to establish concentration-based standards whenever possible and has done so in the Third Third rule. If the standard is above the characteristic level and the waste is treated in compliance with the standard but not below the characteristic level, the waste must be disposed of in a Subtitle C facility.

Summary of Comments

Several commenters (API-042), (CMA-034), (Amoco Corporation-L003) suggested that EPA reduce the time required in the existing treatability variance review process. The commenter suggested that EPA use a non-rulemaking procedure to process treatability variance requests. The commenter

stated that there would likely be a large number of applicants seeking variances for characteristic wastes and a non-rulemaking procedure would reduce the time needed to process the variances. In addition, the commenter suggested that the process for review of variance requests be similar to Class II permit modifications.

Agency Response

The Agency understands the need for streamlined variance procedures and points out that the site specific variance is already a non-rulemaking procedure, as established in the First Third final rule.

Summary of Comments

Several commenters (American Iron and Steel Institute-033), (CMA-034), (BP America-012), (Institute for Chemical Waste Management-030) urged EPA to minimize the number of wastes falling under the "hard hammer" on May 8, 1990. They stated that the "hard hammer" provision would severely affect the hazardous waste management industry. Two commenters (033 and 034) suggested that EPA could minimize the number of wastes subject to the "hard hammer" provision by issuing interim generic BDAT standards (e.g., by waste media, by chemistry).

One commenter (033) suggested that the following wastes be exempt from the "hard hammer:"

- De minimis quantities of leachate or ground water managed in

wastewater treatment units

- Discarded commercial chemical products that become hazardous wastes under 40 CFR 261.33
- Derived-from and mixture rule wastes
- Lab packs
- CERCLA and RCRA remediation wastes

The commenter also suggested that EPA extend the 90-day storage permitting exemption to one year to allow generators to store wastes subject to the "hard hammer."

Agency Response

The Agency believes that, with the exception of newly listed or identified wastes, it has sufficient data to establish final treatment standards. Furthermore, newly listed and identified wastes are not subject to the hard hammer, and the Agency will develop treatment standards for these wastes when it has completed its technical analyses. By promulgating treatment standards for the other wastes subject to the May 8, 1990, statutory deadline, the Agency has rendered the issue of "application of hard hammer" to restricted wastes moot.

Summary of Comments

One commenter (RSR Corporation-016) urged EPA to eliminate the derived-from rule which it considered illogical and unnecessary. The commenter argued

that if treatment removes the characteristic that caused a waste to be listed, then the treated waste should not be subject to RCRA Subtitle C regulation. The commenter claimed that application of the derived from rule has resulted in BDAT standard levels below the characteristic levels that define the waste as hazardous.

Another commenter (API-42) stated that relying on individual treatability variances for container wastes and spill cleanup residues from P or U wastes would require inordinate amounts of time. The commenter requested that EPA develop numerical treatment standards for contaminated equipment or debris.

Agency Response

For the first issue above, the Agency notes that if a waste is listed solely because it exhibits any characteristic, once the waste is treated in compliance with the treatment standard and no longer exhibits any characteristic, it is not subject to the derived from rule (assuming some mixing with a solid waste). Regarding the second issue, the Agency is in the process of developing numerical treatment standards for contaminated equipment or debris. In the interim, the commenter should refer to the language in the recent NCP rule (55 FR 8666; March 8, 1990) about the applicability of the LDR standards to soil and debris.

Summary of Comments

One commenter (DOE-028) urged EPA to clarify that any treatment

standards finalized in the Second Third Rule will not affect mixed wastes including proposals for First, Second, and Third Third wastes (until the effective date for the Third Third wastes). The commenter also suggested rewording Section 268.12(d) dealing with identification of wastes to be evaluated by May 8, 1990 to read as follows: "Wastes listed in Sections 268.10, 268.11, and 268.12 that are mixed hazardous/radioactive wastes."

Agency Response

The Agency had rescheduled all scheduled hazardous wastes that are mixed with radioactive waste to the Third Third rule in the First Third final rule. Today's rule promulgates standards for these mixed wastes.'

CHAPTER 32

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- * These comment identification numbers designate comments responding to the Second Third rule; the identification scheme used for the Second Third rule is different from that used for the Third Third rule comments.